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BIBLIOGRAPHIES ON AEROSPACE SCIENCE

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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BIBLIOGRAPHIES ON AEROSPACE SCIENCE

A CONTINUING BIBLIOGRAPHY

A selection of annotated references to unclassified bibliographies introduced into the NASA information system during the period June 1964–February 1965.



Scientific and Technical Information Division

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON, D. C.

APRIL 1965

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INTRODUCTION

With the publication of this first supplement, NASA SP-7006 (01), to the Continuing Bibliography on "Bibliographies on Aerospace Science" (SP-7006), the National Aeronautics and Space Administration continues its program of periodic distribution of selected references to subjects of interest to the aerospace community. The references are assembled in this form to provide a convenient source of information for use by scientists and engineers who need this type of specialized compilation. Continuing Bibliographies are updated periodically by supplements which can be appended to the original issue.

All references in SP-7006(01) are bibliographies that have been announced in *Scientific and Technical Aerospace Reports (STAR)*, *International Aerospace Abstracts (IAA)*, and the NASA Continuing Bibliography *Aerospace Medicine and Biology* (NASA SP-7011 and its supplements). They were introduced into the NASA information system during the period June, 1964–February, 1965. Produced by a variety of private institutions and governmental organizations, each one provides a listing of references to some aspect of aerospace science.

Each entry in the bibliography consists of a citation and, when available, an abstract. The listing of entries is arranged in two major groups. Report literature references are contained in the first group and are subdivided according to their date of announcement in *STAR*. The second group includes journal and book references subdivided according to date of announcement in *IAA*, or in *Aerospace Medicine and Biology*.

A subject index and a personal author index are also included.

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STAR Series (N64, N65)

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Washington, D.C., 20546

Collections of NASA documents are currently on file in the organizations listed on the inside of the back cover.

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All articles listed are available from the American Institute of Aeronautics and Astronautics, Technical Information Service. Individual and Corporate AIAA Members in the United States and Canada may borrow publications without charge. Interlibrary loan privileges are extended to the libraries of government agencies and of academic non-profit institutions in the United States and Canada. Loan requests may be made by mail, telephone, telegram, or in person. Additional information about lending, photocopying, and reference service will be furnished on request. Address all inquiries to:

Technical Information Service
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For further details please consult the *Introductions* to *STAR* and *IAA*, respectively.

TABLE OF CONTENTS

	Page
1964 STAR Entries	1
1965 STAR Entries	21
1964 IAA Entries	27
1965 IAA Entries	28
1964 LC Entries	29
Subject Index	I-1
Personal Author Index	I-15



BIBLIOGRAPHIES ON AEROSPACE SCIENCE

a continuing bibliography

APRIL 1965

1964

N64-17921 Wisconsin U., Madison Mathematics Research Center

LITERATURE REVIEW OF EXPERIMENTAL DESIGN THROUGH 1949

W. T. Federer Feb. 1964 161 p 1451 refs

(Contract DA-11-022-ORD-2059)

(MRC-TSR-405; AD-433913)

This review of literature in the conduct, the design, and analysis of data from experiments contains a bibliography of slightly less than 1,500 references through the year 1949. Reference is made to the several previous bibliographies in this area; since the applications and needs have been traditionally in the various fields of biology, the references are preponderantly from journals that pertain to biology. Author

N64-17924 School of Aerospace Medicine, Brooks AFB, Tex. Aerospace Medical Div.

THE EFFECTS OF ALCOHOL AND HYPOXIA ON THE HETEROPHORIAS

Richard L. Masters Feb. 1964 24 p refs

(*Its Aeromed. Rev.* 2-64; AD-433129)

The available literature on the effects of alcohol (ethanol), and the effects of hypoxia on the phorias is reviewed. Author

N64-18012 Aerospace Corp., El Segundo, Calif.
BIBLIOGRAPHY ON THE USE OF REDUNDANCY AS A MEANS OF IMPROVING RELIABILITY

J. G. Mead and R. J. Thompson 15 Jan. 1964 32 p refs

(Contract AF 04(695)-269)

(SSD-TDR-63-375; TDR-269(4303)-6; AD-433614)

This bibliography was compiled as part of a series of cost effectiveness studies on the optimum allocation of redundancy. The cutoff date of the listed documents is approximately December 1963. Author

N64-18094 Los Alamos Scientific Lab., N. Mex.
HEALTH PHYSICS BIBLIOGRAPHY ON TRITIUM

Donald A. Mc Kown, comp. 25 Mar. 1964 84 p refs

(Contract W-7405-ENG-36)

(LAMS-2946) OTS: \$2.25

A list of 87 papers with abstracts is given. The papers were selected to cover those aspects of the subject that would be of interest to monitoring and health physics personnel involved in radiation protection work. A few bibliographies are listed. Author

N64-18391 North American Aviation, Inc., Downey, Calif.
Space and Information Systems Div.

ATTITUDE CONTROL: A BIBLIOGRAPHY [1958-1962]

D. W. Hill 10 Apr. 1963 66 p refs

(SID-63-232)

This report is a survey of academic literature on the attitude control of satellites and space vehicles. Only material published in English between the years 1958 and 1962 is included. Author

N64-18397 Los Alamos Scientific Lab., N. Mex.
CHEMICAL DETECTORS. A BIBLIOGRAPHY FOR THE INDUSTRIAL HYGIENIST WITH ABSTRACTS AND ANNOTATIONS

Evan E. Campbell and Helen M. Miller, comps. 31 Mar. 1964 465 p refs

(Contract W-7405-ENG-36)

(LAMS-2378 (Vol. 2)) OTS: \$5.50

The abstracts in this bibliography are arranged alphabetically by compounds. Those in Volume I ranged from A through E; those in this volume go from F through Z. In addition, this volume contains Addenda to Volume I, bringing the bibliography up to the end of 1963. Author

N64-18458 Atomic Energy Commission, Washington, D. C.
Div. of Technical Information

FLUXES AND THEIR USE IN SOLDERING ALUMINUM. A LITERATURE SEARCH

James M. Jacobs, comp. Feb. 1964 27 p 452 refs

(TID-3577) OTS: \$0.50

Citations to the report and published literature on the fluxes used in aluminum soldering and the techniques applied, when soldering aluminum with the aid of fluxes, are presented. Personal author, report number, and patent indexes are included. Author

N64-18490 Rocketdyne, Canoga Park, Calif.
SOURCES OF INFORMATION IN HUMAN FACTORS ENGINEERING, INCLUDING ASSOCIATED AREAS IN SYSTEM SAFETY, MAINTAINABILITY, PERSONNEL SUBSYSTEM, LIFE SCIENCES, QUALITY ASSURANCE, AND RELIABILITY ENGINEERING

George A. Peters and Frank S. Hall 15 Jan. 1964 83 p refs (RH 3398B)

A comprehensive listing of regulatory and guidance documents pertaining to human-factors engineering and to areas of technical overlap or interdependence is presented. The references are divided into the following groups: (1) regulatory and guidance documents—a listing of documents that specifies what should be done by human-factors activities, including various regulations, specifications, standards, manuals, instructions, and programs requirements that attempt to define the character of the contractors human-factors functions; (2) descriptive publications—a sampling of government agency reports that attempt to describe how various functions might be accomplished, review the state-of-the-art in a given area, present new methods, or list basic data that might be useful in human-factors analysis; (3) illustrative reports—a cross section of contractually required or data submittal reports, representative of what was actually accomplished, how it was done, and the type of organization or approach that was utilized; and (4) reference sources—a guide on where to go for technical information in the field of human-factors engineering. P. V. E.

N64-18656 Rock Island Arsenal, Ill.
RUST REMOVING CORROSION PREVENTIVES – LITERATURE REPORT

Bernard J. Bornong 27 Aug 1963 42 p refs
 (RIA 63-2762; AD-432503) OTS: \$1.25

A survey of the literature on rust removal and prevention was conducted to (1) determine the status of materials used for these purposes, and (2) consider the feasibility of developing a readily removable oil or solvent-soluble combination rust remover and preventive. At present, no combination product of this type is available that is a completely effective rust remover and preventive. Development of such a product is recommended. Several areas for intensive study, which may aid in this development, are suggested. Author

N64-19035 Atomic Energy Commission, Washington, D.C.
 Div. of Technical Information
THE EFFECTS OF RADIATION AND RADIOISOTOPES ON THE LIFE PROCESSES. AN ANNOTATED BIBLIOGRAPHY, BOOK 1

Charlie M. Pierce, comp. Sep. 1963 744 p refs
 (TID-3098, Book 1) OTS: \$15.00 for books 1-3

A total of 11,944 annotated references to report and published literature concerning the effects of radiation on biological systems is presented. The references are primarily categorized by type of organism. An author and a permuted title subject index are provided. Author

N64-19036 Atomic Energy Commission, Washington, D.C.
 Div. of Technical Information
THE EFFECTS OF RADIATION AND RADIOISOTOPES ON THE LIFE PROCESSES. AN ANNOTATED BIBLIOGRAPHY, BOOK 2

Charlie M. Pierce, comp. Sep. 1963 751 p refs For abstract see N64-19035 11-16
 (TID-3098, Book 2) OTS: \$15.00 for books 1-3

N64-19131 Lockheed Missiles and Space Co., Sunnyvale, Calif.
AERODYNAMIC HEATING AND OTHER PARAMETERS AFFECTING SPACE VEHICLE OPERATIONS: AN ANNOTATED BIBLIOGRAPHY

Charles G. Gros, comp. Feb. 1963 49 p 80 refs
 (Contract AF 04(647)-673)
 (Rept. 3-35-63-2; SB-63-18; AD-436090)

The abstracts are arranged alphabetically by author. Corporate author, personal author, and subject indexes are included. The period covered, with one earlier exception, is from 1959 through 1962. Material dealing with aerodynamic heating as an isolated phenomenon has not been included. Author

N64-19236 Atomic Energy Commission, Washington, D.C.
 Div. of Technical Information
THE EFFECTS OF RADIATION AND RADIOISOTOPES ON THE LIFE PROCESSES, AN ANNOTATED BIBLIOGRAPHY (INDEX)

Charlie M. Pierce, comp. Sep. 1963 352 p refs
 (TID-3098(Index)) OTS: \$15.00 for books 1-3

This volume is an author and a permuted title subject index. Author

N64-19241 Sandia Corp., Albuquerque, N. Mex.
THE EFFECT OF RADIATION ON THE MECHANICAL PROPERTIES OF POLYMERS, UNCLASSIFIED LITERATURE, 1955 TO OCTOBER, 1963

R. K. Traeger Mar. 1964 37 p refs
 (SC-R 64-124) OTS: \$0.75

This bibliography reviews effects due to neutron, gamma-ray, X-ray, electron, ultraviolet, and mixed radiation. The references are listed under individual polymer types. General reviews, books, and effects on dynamic mechanical properties are given separate headings. E. W.

N64-19559 Sylvania Electric Products, Inc., Mountain View, Calif.
 Electronic Defense Labs.
FERROELECTRIC BIBLIOGRAPHY SUPPLEMENT Technical Memorandum

Robert D. Hall, comp. 23 Aug. 1963 90 p refs
 (Contract DA 36-039-AMC-00088(E))
 (EDL-M557; AD-433653)

This supplement continues the sequence beginning with M 165 and M 351, and includes the articles in the appendix to M 351. There are 24 classifications given, among which are: ferroelectrics by groups and compounds, antiferroelectrics, theory, dielectric properties, piezoelectric properties, radiation, single crystals, composition variations, applications, and patents. A. W.

N64-19616* American Inst. for Research, Los Angeles, Calif.
ARTIFICIAL INTELLIGENCE: A SUMMARY OF CURRENT RESEARCH AND DEVELOPMENT

Peter A. Lachenbruch, Alec J. Slivinske, and Angeline C. Marchese Feb. 1962 178 p refs
 (NASA Contract NAS7-100; JPL Contract 950085)
 (NASA CR-53830; AIR-C63-2/62-TR) OTS: \$12.50 ph

Current research and development in the field of artificial intelligence was reviewed by examining existing physical, mathematical, and logical models of brain functions at the installations and facilities engaged in this research. Relevant literature also was reviewed to update the literature searches previously performed. The findings are summarized under the general headings of neurological considerations, special purpose computer models, and general computer program models. A bibliography of 1,129 supplementary specific references and 67 general sources (proceedings of symposia and conferences, anthologies and relevant bibliographies) is presented. A systematic review of the field is presented, with special emphasis on evaluating the potentiality of theory and of devices in providing a basis for the development of equipment to be used in space systems. Author

N64-19810 National Bureau of Standards, Washington, D.C.
BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF MATERIALS IN THE CONDENSED STATE. VOLUME NO. 1, JANUARY, FEBRUARY, MARCH 1964

J. J. Diamond ed. 1964 69 p 109 refs

This bibliography covers the following subjects: (1) devices for achieving temperatures above 1,500° C; (2) devices for measuring and controlling temperatures above 1,500° C; (3) devices for physical measurements at temperatures above 1,000° C; (4) properties, at temperatures below and above 1,000° C, of materials that melt above 1,500° C—metallic materials, nonmetallic materials, and mixed materials; (5) properties, at temperatures above 1,000° C, of materials that melt below 1,500° C; (6) phase equilibria; and (7) reactions at temperatures above 1,000° C. R.T.K.

N64-19811 California U., Berkeley
BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF GASES AND GAS-CONDENSED PHASE REACTIONS

L. Brewer, comp. 31 Mar. 1964 21 p 70 refs
 (Rept 11)

This bibliography includes the following topics: (1) reaction between gases and condensed phases; and (2) spectroscopy of interest to high-temperature chemistry. R.T.K.

N64-19852 Atomic Energy Commission, Washington, D.C.
 Div. of Technical Information
PEACEFUL USES FOR NUCLEAR EXPLOSIVES Selected. Annotated Bibliography

Hugh E. Voress, William F. King, and Carl R. Gerber, comp. Jan. 1964 59 p refs
 (TID-3522(Rev. 7)) OTS: \$1.25

The references are arranged by subject, including Excavation, Projects Sedan and Gnome, and Natural Resources Development. There are also author and availability indices. R.L.K.

N64-19889* National Aeronautics and Space Administration, Washington, D.C.
A SELECTED LISTING OF NASA SCIENTIFIC AND TECHNICAL REPORTS FOR 1963
 1964 245 p refs
 (NASA SP-7005) OTS: \$3.50

Abstracts, a subject index, a corporate source index, and a personal author index are given for selected NASA scientific and technical reports. The abstracts presented are grouped and listed under 34 categories. The subject index is characterized by terms that identify the particular area of study. Appearing under these terms are the notation of content and the accession number for each report. The notation of content explains briefly what the report contains, and the accession number is assigned by NASA. In the corporate source index, the reports are identified by the corporate source, under which appears the notation of content and the accession number. In the personal author index, the reports are identified by the names of the authors, followed by the notations of content and the accession numbers. Finally, the reports are listed in a report/accession number index and an accession/report number index. C.L.W.

N64-20020* Library of Congress, Washington, D.C. Science and Tech. Div.
ABSTRACTS OF CURRENT LITERATURE: AEROSPACE MEDICINE AND BIOLOGY
 Arnold J. Jacobus. Repr. from Aerospace Med., v. 35, no. 4, Apr. 1964 p 389-400 refs
 (Supported by NASA)

Categories covered by the abstracts presented include: (1) biology; (2) general physiology; (3) neurophysiology and sensory physiology; (4) psychology and psychiatry; (5) environmental physiology and psychology; (6) aerospace personnel (the effect of age on performance and on various physiological factors); (7) medical problems and pharmacology; (8) toxicology; (9) safety, survival, and rescue; and (10) man-machine integration and life-support systems. I.v.L.

N64-20358 RAND Corp., Santa Monica, Calif.
SOLAR SYSTEM SCIENCE BIBLIOGRAPHIES
 Edna O'Connell Jan. 1964 52 p refs
 (P-2859; AD-429110)

This paper is an annotated bibliography of bibliographies of scientific disciplines related to the solar system covering the period from 1961 to 1963. The subjects included are: atmospheric physics, interplanetary physics, the moon, the planets, and bibliographies related to solar system science in general. R.T.K.

N64-20468 Library of Congress, Washington, D.C. Aerospace Information Div.
SKY ILLUMINATION DURING ECLIPSE. ANNOTATED BIBLIOGRAPHY OF SOVIET-BLOC LITERATURE FOR THE PERIOD 1940-1963
 17 Apr. 1964 72 p refs
 (AID-B-64-20; AD-439226) OTS: \$7.60 ph

This is an annotated bibliography of Soviet-bloc materials on sky illumination during solar eclipses (sky brightness, light polarization, and photometry of the corona) published since 1940. The items describe photometric investigations of the eclipses of 19 June 1936, 21 September 1941, 9 July 1945, 25 February 1952, 30 June 1952, 2 December 1956, 19 April 1958, 2 October 1959, and 15 February 1961. Author

N64-20469 Library of Congress, Washington, D.C. Aerospace Information Div.
PHENOMENA IN THE UPPER ATMOSPHERE. COMPILATION OF ABSTRACTS FROM SOVIET LITERATURE
 24 Apr. 1964 20 p refs
 (AID-P-64-30; AD-439227) OTS: \$1.60 ph

The following topics are covered: (1) ionospheric electron concentration; (2) solar radiation and the ionosphere; (3) Van Allen Belts and cosmic rays; (4) telluric currents; and (5) meteorology of the upper atmosphere. R.T.K.

N64-20470 Library of Congress, Washington, D.C. Aerospace Information Div.
PHENOMENA IN THE UPPER ATMOSPHERE. COMPILATION OF ABSTRACTS FROM SOVIET LITERATURE
 29 Apr. 1964 22 p refs
 (AID-P-64-31; AD-439228) OTS: \$2.60 ph

The following topics are covered: (1) solar radiation and the ionosphere; (2) Van Allen belt and cosmic rays; (3) atmospheric electricity; (4) nuclear bursts in the atmosphere; and (5) meteorology of the upper atmosphere. R.T.K.

N64-20475 Space Technology Labs., Inc., Redondo Beach, Calif.
INTERPLANETARY MATTER: A BIBLIOGRAPHY, 1963 SUPPLEMENT Research Bibliography No. 50
 L. R. Magnolia, comp. May 1964 312 p refs Suppl. to N62-16764 17-28 and N63-22775 23-29
 (Rept 9990-6649-KU-000)

This bibliography consists of 662 annotated references on asteroids, comets, meteorites, meteors, micrometeorites, noctilucent clouds, nonterrestrial dust, the origin of the solar system, tektites, the zodiacal light, and related subjects. The majority of the items are those published in 1963 as well as those released in 1963 by DDC (formerly ASTIA) and NASA.
I v L

N64-20498 Lockheed Missiles and Space Co., Sunnyvale, Calif.

OPTICAL IMAGE CONVERTERS Annotated Bibliography, 1961-1963

Jack B. Goldmann, comp. Jan. 1964 24 p refs
(SB-64-5; Rept. 8-13-64-1)

A literature search was made to determine the variety of techniques used in the development of the optical image converter. This annotated bibliography of 45 references emphasizes the advances and innovations for the years 1961-1963.

Author

N64-20499 Lockheed Missile and Space Co., Sunnyvale, Calif.

SUPERCONDUCTIVITY Annotated Bibliography, Jan.-Jun. 1963

Jack B. Goldmann, comp. Jul. 1963 118 p refs
(SRB-63-5; Rept. 6-90-63-79)

Current theory, properties, and applications of superconductors, as presented in the literature from January to June 1963 are covered in this annotated bibliography. The 242 entries, representing English and foreign language publications, are listed alphabetically by author. To facilitate location of specific items, author and subject indexes are included. Author

N64-20500 Lockheed Missiles and Space Co., Sunnyvale, Calif.

SUPERCONDUCTIVITY Annotated Bibliography, 1961-1962

Jack B. Goldmann, comp. Apr. 1963 206 p refs For Supplement 1, see N64-10405 01-25
(SB-63-33; Rept. 6-90-63-43)

This annotated bibliography on superconductivity covers the following subjects: (1) applications; (2) properties—conductivity, energy gap, magnetism, penetration depth, resistance, resonance, and ultrasonic effects; (3) theory; (4) thin-film preparation; and (5) transitions—critical current, critical field, critical temperature, intermediate state, and transition temperature.
R T K

N64-20517 Lockheed Missiles and Space Co., Sunnyvale, Calif.

RADIATION EFFECTS UPON EXPERIMENTAL ANIMALS, MAN, AND PLANTS, VOLUME I, A-L Annotated Bibliography, 1961-1962

Jack B. Goldmann, comp. Jan. 1963 440 p refs
(SB-62-60; Rept. 5-10-62-54)

The scope of this annotated bibliography is comprehensive, but not exhaustive. The 2,203 references reflect the volume of literature available in English and foreign languages (June 1961-June 1962) in the sequential order indicated by the title. Lethal doses, genetic effects, illness, and decrease of life span are some of the subject areas identified with the experimental animals, man, and plants. An author index is included.

Author

N64-20518 Lockheed Missiles and Space Co., Sunnyvale, Calif.

THERMIT WELDING Selective Bibliography, 1940-1962

Scott J. Buginas, comp. Feb. 1963 21 p refs
(SB-63-25; Rept. 5-72-63-7)

This bibliography contains 59 selected references on thermit welding from the literature of 1940-1962. The prime interest areas of the search were in joining aluminum by this process and in joining heavy plate. Brief abstracts are included with most citations to expand title information. Abstracts are arranged in alphabetical order by author's name.

Author

N64-20529 Atomics International, Canoga Park, Calif.
A DISCUSSION AND BIBLIOGRAPHY OF CURRENT LITERATURE CONCERNING VAN ALLEN BELTS FOR USE IN SNAP SPACE ENVIRONMENTAL STUDIES

V E Kistler 15 Feb. 1963 49 p refs

(Contract AT(11-1)-GEN-8)

(NAA-SR-7849) OTS \$1.00

This report presents a bibliography of theoretical and experimental papers concerning the Van Allen trapped radiation belts. Also, a general discussion of past history and conclusions from some experimental and theoretical work are presented. This information is applicable to the evaluation of space radiation influences upon SNAP reactor systems. All results quoted are subject to change, since additional information and improved instrumentation may provide new bases for the interpretation of experimental data. Author

N64-20531 Lockheed Missiles and Space Co., Sunnyvale, Calif.

DETECTION TECHNIQUES AND ATMOSPHERIC DISPERSAL OF TOXIC GASES AND AEROSOLS: AN ANNOTATED BIBLIOGRAPHY

Charlie M. Pierce, comp. Apr. 1963 65 p refs
(SB-63-39; Rept. 3-32-63-1)

Potential and actual environmental hazards from diffusible toxic agents and the use of meteorology to help evaluate, understand, and minimize these hazards have become increasingly significant. The scope of this bibliography includes such areas as detection techniques and instrumentation, dispersion by winds, and the physiological effects of atmospheric contaminants. The references are arranged according to the first author, wherever possible. Indexes for corporate author, personal author, and subject are included. Author

N64-20532 Lockheed Missiles and Space Co., Sunnyvale, Calif.

DYNAMIC LOADING AND STRUCTURES ANALYSIS: AN ANNOTATED BIBLIOGRAPHY

Jack B. Goldmann and Helen Mc Cormick, comp. Jul. 1963 158 p refs
(SB-63-53; Rept. 5-73-63-9)

This bibliography emphasizes structural testing of loading methods, equipment used, and results obtained in the aerospace industry within the last 3 to 5 years. Categories surveyed include dynamic loading, shell structures, test applications, test facilities, test instrumentation, and transducers.

Author

N64-20533 Lockheed Missiles and Space Co., Sunnyvale, Calif.

BIBLIOGRAPHY OF LMSC BIBLIOGRAPHIES [1958-1963]

Jan. 1964 76 p refs

(SB-64-7; Rept. 5-10-64-2)

This publication is a listing of all bibliographies generated by the LMSC Technical Information Center between 1958 and 1963. Entries are arranged alpha-numerically by report coding. Subject and personal author indexes are included. Author

N64-20547 Lockheed Missiles and Space Co., Sunnyvale, Calif.

JOINING OF BERYLLIUM AND ITS ALLOYS BY WELDING AND/OR BRAZING: AN ANNOTATED BIBLIOGRAPHY

Jack B. Goldman, comp. Aug. 1963 37 p 90 refs
(Contract NOrd-17017)

(SB-63-61)

Intense investigation has been made of the problem of joining beryllium and its alloys either by welding and/or brazing during the past 3 years, 1960 to 1963. This annotated bibliography is the result of the examination of printed matter for that period as found in the journal and report literature.

Author

N64-20593* National Aeronautics and Space Administration, Marshall Space Flight Center, Huntsville, Ala.

1963 PUBLICATIONS

W. A. Mrazek 3 Feb. 1964 25 p refs
(NASA TM X-53006) OTS: \$2.60 ph

"1963 Publications" is a compilation of official abstracts of Marshall Technical Papers and Internal Notes, written by personnel of the Materials Division, released during 1963.

Author

N64-20613 American Society of Civil Engineers, New York, N.Y. Committee on Electronic Computation of the Structural Div.

SELECTED BIBLIOGRAPHY OF WORKS ON THE USE OF DIGITAL COMPUTERS IN STRUCTURAL ENGINEERING

Robert E. Fulton, John S. Archer, Heinrich W. Bergmann, John J. Kozak, and Charles H. Samson, Jr. 1 Apr. 1963 83 p refs

* Contained in this bibliography are listings of papers and reports dealing with using computers in structural engineering, listings of books useful in computer work, and a listing of extensive bibliographies on numerical methods and associated topics. Papers dealing with analog computers, linear programming, and operations research are not included. I.v.L.

N64-20676 American Meteorological Society, Boston, Mass.

BIBLIOGRAPHY ON METEOROLOGICAL SATELLITES (1952-1962) Supplement No. 1

Elemer Kiss, comp. Sep. 1963 55 p refs Suppl. to N64-14260 06-32

This is an experimental bibliography with indexes produced by electronic computer (IBM 1401 and 7090). The subjects covered include: (1) meteorological instruments, (2) synoptic analysis, (3) atmospheric structure, composition, and density, (4) upper atmosphere, (5) ionosphere, (6) exosphere, (7) atmospheric formations and disturbances, (8) ultraviolet and infrared radiation, (9) cosmic radiation, and (10) atmospheric temperature, pressure, wind, and moisture. R.T.K.

N64-20716 Atomic Energy Commission, Washington, D.C. Div. of Technical Information

PEACEFUL USES FOR NUCLEAR EXPLOSIVES, A SELECTED ANNOTATED BIBLIOGRAPHY

Hugh E. Voress, Richard J. Smith, and Carl R. Gerber, comp. Jan. 1963 47 p refs

(TID-3522(Rev. 6)) OTS: \$1.25

This bibliography presents 215 annotated references concerning the use of nuclear explosives for peaceful purposes, such as isotope production, oil recovery, water management, and the excavation of harbors and canals. I.v.L.

N64-20810 Federal Aviation Agency, Washington, D.C. Library Services Div.

AIRPORTS AND HELIPORTS: DESIGN, CONSTRUCTION AND MAINTENANCE. SELECTED REFERENCES Bibliographic List No. 9 [1959 to Date]

Jul. 1963 74 p refs

This bibliography on "Airports and Heliports: Design, Construction, and Maintenance" is a partially annotated compilation of selected references with international coverage from 1959 to date. I.v.L.

N64-20891 Lockheed Missiles and Space Co., Sunnyvale, Calif.

SLOT ANTENNA STUDIES Annotated Bibliography

George R. Evans, comp. Jan. 1963 226 p refs

(Contract NOrd-17017)

(SB-63-4; Rept. 3-80-63-1; AD-438179)

In designing guided missile antennas, a singular advantage gained from using slot antennas is that, since they are flush-mounted, drag is reduced to a minimum. References include information to aid in design and development studies. Primary areas of interest are impedance characteristics, bandwidth, and power-handling capabilities. Also included are radiation pattern analyses and waveguide studies. Many of the references, while not directly applicable to missile antennas, are included because slot theory is discussed. Author

N64-20892 Lockheed Missiles and Space Co., Sunnyvale, Calif.

SYSTEMS ENGINEERING Annotated Bibliography

George R. Evans, comp. Apr. 1963 47 p refs

(Contract NOW-63-0050)

(SB-63-12; Special Bibliog. 8-40-63-3; AD-439441)

This bibliography is limited to reports, most of them classified, concerned with the technical problems of systems engineering in space and weapon projects. It is highly selective and representative of the research done in this area, but is by no means exhaustive. G.D.B.

N64-20893 Lockheed Missiles and Space Co., Sunnyvale, Calif.

THERMODYNAMICS OF REFRACTORY COMPOUNDS OF BERYLLIUM (OXIDES, BORIDES, CARBIDES, AND NITRIDES) An Annotated Bibliography

Jack B. Goldmann, comp. Apr. 1963 103 p refs

(Contract NOrd-17017)

(SB-63-16; Rept. 3-80-63-3; AD-439445)

The thermodynamics of beryllium and its refractory compounds (oxides, borides, carbides, and nitrides) from 298.15° to 6,000° K is the basis for this annotated bibliography. References consist of theoretical and experimental studies that appeared in print from 1880 to 1962. Author

N64-20894 Lockheed Missiles and Space Co., Sunnyvale, Calif.

BERYLLIUM Annotated Bibliography, Oct.-Dec. 1962, Supplement III

Jack B. Goldmann, comp. Apr. 1963 58 p refs

(Contract NOrd-17017)

(SB-62-22; Rept. 3-80-63-2; AD-438176)

The following annotated bibliography covers publications released during the fourth quarter of 1962. Citations are arranged alphabetically by author under the broad subject headings of Alloys; Analysis; Applications; Bibliographies; Compounds; Corrosion; Fabrication Techniques; Joining; Mineralogy; Oxides; Powder Metallurgy; and Casting, Processing, Properties, and Miscellaneous. References to the use of beryllium fuels, nuclear reactor applications, effects of radiation, and Cu-Be alloys were omitted. Author

N64-20895 Lockheed Missiles and Space Co., Sunnyvale, Calif.

THE DESIGN AND ANALYSIS OF ELECTRICAL AND ELECTRONIC SYSTEMS BY MEANS OF DIGITAL COMPUTERS
An Annotated Bibliography

Charlie M. Pierce, comp. Sep. 1963 34 p refs
(Contract N0w-63-0050-c)
(SB-63-65, Rept. 2-60-63-2; AD-439440)

Computerized methods of designing and analyzing electrical and electronics systems are being used with increasing frequency because of the demand for more complex and more efficient systems. This publication consists of 63 references dealing with the application of digital computers in this field. Most of the references were published between January 1958 and June 1963. The references are alphabetically arranged according to the first author. Indexes are included for corporate author, personal author, and subject. Author

N64-20896 Lockheed Missiles and Space Co., Sunnyvale, Calif.

TUBE AND SEA LAUNCH DYNAMICS **Annotated Bibliography**

Peter R. Stromer, comp. Sep. 1963 19 p refs
(Contract AF 04(694)-418)
(SB-63-67, Rept. 4-24-63-1; AD-438183)

Publications concerned with tube and sea launching are given in this bibliography. With a trend toward larger missiles, rockets, and launch sites, ways for other methods of launching payload vehicles into space were explored. Sea launching offered attractive possibilities of greater mobility, elimination of costly ground support equipment, and reduced hazards. The booster, with or without staging, can be floated vertically on the surface of the ocean and launched from this position. The concept of tube or silo launching has already demonstrated its feasibility and this method is now operational. References to these launching techniques and other more exotic schemes employing vacuum air boost or nuclear-powered cannon for initial thrust velocity are included. Author

N64-20897 Lockheed Missiles and Space Co., Sunnyvale, Calif.

PCM TELEMETRY **An Annotated Bibliography, 1959-1963**

Peter R. Stromer, comp. Jan. 1964 45 p refs
(Contract N0w-63-0050-c)
(SB-64-6, Rept. 2-60-64-9; AD-439442)

Telemetry information from missiles and space vehicles requires systems of high accuracy, minimum power and bandwidth consumption, and adaptability and compatibility with computing equipment both on board the vehicle and at ground stations. The advantages of digital communication systems, especially pulse code modulated (PCM) telemetry, for the above purpose were demonstrated. The literature referenced herein contains comparative evaluations and optimization techniques for PCM, pulse amplitude modulation (PAM), pulse duration modulation (PDM), and pulse frequency modulation (PFM). Period of coverage is 1959 through 1963. A subject index is included. Author

N64-21026 Aerospace Corp., El Segundo, Calif. Aerodynamics and Pulsion Research Lab.

UNCLASSIFIED ANNOTATED BIBLIOGRAPHY RELATING TO THE SYNTHESIS AND PHYSICAL PROPERTIES OF ALUMINUM HYDRIDE AND CLOSELY RELATED COMPOUNDS [1937-1963]

Peter Breisacher 21 Feb. 1964 18 p refs
(Contract AF 04(695)-269)
(TDR-269(4210-10)-4; SSD-TDR-64-17; AD-439243)

The open literature for the period 1937 through 1963 has been searched for all references on the subject of aluminum hydride. Many of the references have proved to be somewhat erroneous in their conclusions in the light of present day knowledge on the subject. However, for completeness, all are included. The references are listed chronologically by year. Author

N64-21148 Lockheed Missiles and Space Co., Sunnyvale, Calif.

PRINTED CIRCUITS AND WELDED MODULES [1963]: AN ANNOTATED BIBLIOGRAPHY

Jack B. Goldmann, comp. Dec. 1963 45 p refs
(Contract AF 04(647)-673)
(SB-64-2, Rept. 3-35-64-2; AD-600708)

This bibliography is a continuation of SB 63-17, "Printed Circuits and Welded Modules: An Annotated Bibliography (1962)." Microminiaturization of circuits and components as it is applied to manufacturing research, design standards, and procedures; production methods and techniques and applications of the fabricated items were the subjects for which information was sought. Author

N64-21165 Lockheed Missiles and Space Co., Sunnyvale, Calif.

NICKEL-IRON PERMALLOY FILMS **An Annotated Bibliography [1958-1963]**

Jack B. Goldmann, comp. Sep. 1963 71 p refs
(Contract N0w-62-0363)
(SB-63-62, Rept. 3-26-63-6; AD-439443)

This is an annotated bibliography consisting of entries on the making of iron films, nickel films, nickel-iron, or Permalloy films by means of thermal decomposition of the carbonyls, reduction of the halides, or other methods, during the years 1958 to 1963. The use of high-vacuum techniques is omitted. Author

N64-21214 Lockheed Missiles and Space Co., Huntsville, Ala. Huntsville Research and Engineering Center

A PARTIALLY ANNOTATED BIBLIOGRAPHY OF REPORTS IN THE FIELD OF SECONDARY INJECTION THRUST VECTOR CONTROL

Walter E. Whitacre, R. W. Miller, and L. M. Hair 7 Feb. 1964 87 p refs
(HREC/LMSC-A033127; TM-54/01-27)

The following are included: (1) a listing of reports and papers directly related to SITVC (Secondary Injection Thrust Vector Control); (2) annotation of the reports listed in (1); (3) a listing of reports and papers on closely related subjects; (4) alphabetical indexes, by author or company of referenced works; (5) an alphabetical listing of other known reports in the TVC (Thrust Vector Control) field; and (6) a listing of other known TVC bibliographies. R.T.K.

N64-21485 Lockheed-California Co., Burbank

INTERPLANETARY MAGNETIC FIELDS. A BIBLIOGRAPHY OF THE OPEN LITERATURE, JANUARY 1958-APRIL 1964

John P. Lathourakis, comp., May 1964 44 p refs
(LR-17860)

This unannotated bibliography comprises a search of the recent unclassified literature on interplanetary magnetic fields. The citations provided refer to direct and indirect observations; theoretical work was not considered. References to interactive forces and the earth's magnetosphere are not complete and are treated in separate sections. Author

N64-21495 Army Missile Command, Huntsville, Ala. Physical Sciences Lab.
MATERIALS FOR RE-ENTRY. A SELECTED BIBLIOGRAPHY, 1959-1963

Vernon A. Nieberlein 12 Mar. 1964 74 p refs
(RR-TR-64-1; AD-433656)

This is a selected abstracted bibliography covering the years 1959 through 1963, indexed by subject and author. Materials for reentry, and closely related work on reentry environment, materials requirements, and cooling mechanisms are included. Author

N64-21677 General Electric Co., King of Prussia, Pa. Space Sciences Lab.
A SELECTED BIBLIOGRAPHY ON MANNED ORBITAL SPACE STATIONS [1958-JUNE 1963]
Margaret W. Sykes Aug. 1963 46 p refs
(R63SD65)

This bibliography contains 135 references to publications on manned orbital space stations and their components, including structural materials, power supplies, and life-support systems. The references are arranged alphabetically by author, and abstracts have been supplied when available.

N.E.A.

N64-21785* National Aeronautics and Space Administration, Washington, D.C.
HIGH ENERGY PROPELLANTS. A CONTINUING BIBLIOGRAPHY, JANUARY 1962-MARCH 1964
1964 73 p refs
(NASA-SP-7002) OTS: \$1.75

This bibliography presents a selection of annotated references to unclassified reports and journal articles on high-energy propellants. Prime emphasis is given to those references that are concerned with research and development studies on solid, liquid, and hybrid propellants and oxidizers, but the bibliography also provides extensive coverage of such related topics as propellant handling and storage, combustion characteristics, toxicity, and hazards and safety measures. Each entry in the bibliography consists of a citation and an abstract. A subject index is also included. N.E.A.

N64-21844 General Electric Co., Schenectady, N.Y. Knolls Atomic Power Lab.
BIBLIOGRAPHY ON COMPRESSED AIR SYSTEMS-SAFETY CONSIDERATIONS (SELECTED REFERENCES)
Helyn Walton, comp. Oct. 1963 14 p refs
(KAPL-M-TL-1)

N64-22060 Los Alamos Scientific Lab., N. Mex.
SOME ETHICAL AND SOCIAL PROBLEMS OF SCIENCE AND TECHNOLOGY: A BIBLIOGRAPHY OF THE LITERATURE FROM 1955
J. Arthur Freed, comp. 6 Feb. 1964 48 p refs
(Contract W-7405-ENG-36)
(LAMS-3028) OTS: \$1.25

N64-22200 Lockheed Missiles and Space Co., Sunnyvale, Calif. Technical Information Center
LONG-RANGE PLANNING AND TECHNOLOGICAL FORECASTING: AN ANNOTATED BIBLIOGRAPHY
Peter R. Stromer, comp. Nov. 1963 46 p refs
(SRB-63-12; Rept.-5-47-63-1)

A survey was made of the recent aerospace and business management literature covering the broad spectrum of long-range planning and technological forecasting. While emphasis was placed on applicability to the aerospace and defense industry, additional inputs detailing the general philosophy and techniques of industrial and government planning and related subject fields of economic projections, resource allocations, and cost analyses have been included. A subject index facilitates use of this material. Author

N64-22219 Lockheed Missiles and Space Co., Sunnyvale, Calif.
NEUTRON FLUX MEASUREMENTS: AN ANNOTATED BIBLIOGRAPHY
Charlie M. Pierce, comp. Sep. 1963 65 p refs
(SRB-63-7; LMSC-6-90-63-96)

The references cited deal with all aspects of neutron flux measurements. Most of the references were published between June 1959 and June 1963. The references are alphabetically arranged according to the first author. Corporate and personal author indexes are included. Author

N64-22289 Library of Congress, Washington, D.C. Aerospace Information Div.
SURVEY OF SOVIET-BLOC SCIENTIFIC AND TECHNICAL LITERATURE. TRACKING OF MISSILES AND SPACE VEHICLES. COMPILATION OF ABSTRACTS AID Work Assignment No. 12, Report No. 21
22 May 1964 40 p refs
(AID-P-64-36; AD-600656)

This bibliography covers the following topics: (1) electromagnetic problems; (2) ion clouds and ionosphere perturbations; and (3) radio astronomy—radio emission and antennas, and quantum molecular oscillators. P.V.E.

N64-22332 United States Rubber Co., Wayne, N.J. Research Center
LITERATURE SEARCH INTO METHODS OF DAMPING OUT INCIPENT TURBULENCE IN THE FLOW OF LIQUIDS
Final Report
J. Thompson, F. W. Boggs, and N. Tokita 9 Jan. 1964 31 p refs
(Contract DA-30-069-AMC-287(T))
(AD-427728)

The problem of delaying transition from laminar to turbulent flow has long been under investigation. This report presents a bibliography on the work done for the last 50 years on the transition problem specifically for incompressible flow over flat plates or in pipes. The articles included in this list are concerned with the mechanism of transition and transition delay. Recent research has indicated that the addition of non-Newtonian additives to the flow may be a promising way of delaying transition in piping systems, such as hydraulic line, normally found in industry. Reduction of noise in pipes is possible by the use of flexible surfaces. Author

N64-22372 Lockheed Missiles and Space Co., Sunnyvale, Calif.

BIONICS—A STUDY OF BIOLOGICAL RECEPTORS AND REGULATORS AND THEIR APPLICATION TO ENGINEERING DESIGN: AN ANNOTATED BIBLIOGRAPHY

Charlie M. Pierce, comp. Jun. 1963 218 p refs
(SRB-63-2; LMSC-6-90-63-66)

Bionics is a field of study that involves the chemical, electrical, or mechanical simulation of biological functions. Areas of application include automatic control systems, chemical engineering, computer design, detector design, and medicine. The scope of this bibliography encompasses living sensory receptors, biological control systems, and their simulation. Emphasis has been placed on auditory perception. Visual receptors are not covered in great detail, since knowledge in this area is relatively advanced. Most of the 515 references were published between January 1958 and June 1963. The references are grouped by subject topics and arranged according to the first author. Separate indexes for corporate author, personal author, and subject are included at the end of the bibliography.

Author

N64-22515 Aerospace Medical Div. Aerospace Medical Research Labs. (6570th), Wright-Patterson AFB, Ohio Behavioral Sciences Lab

ENGINEERING PSYCHOLOGY, TRAINING PSYCHOLOGY, ENVIRONMENTAL STRESS, SIMULATION TECHNIQUES, AND PHYSICAL ANTHROPOLOGY: A BIBLIOGRAPHY OF REPORTS, April 1946–March 1964

Lavon E. Trygg and Lucille E. Kelsey, comp. Apr. 1964 89 p refs
(AD-600804)

N64-22614 RAND Corp., Santa Monica, Calif.
DYNAMIC PROGRAMMING: A BIBLIOGRAPHY OF THEORY AND APPLICATION

Richard Bellman and Rebecca Karush Feb. 1964 144 p refs
(Contract AF 49(638)-700)
(RM-3951-PR; AD-429915)

This bibliography of publications concerning the theory and application of dynamic programming covers all phases of problem solving, including recognition, formulation, analysis, computation, and reformulation. The bibliography is divided into three parts—first, a chronological ordering of publications, with authors listed alphabetically under each year; second, an alphabetical index of authors; and third, a subject index, with authors listed alphabetically under each subject category.

R.T.K.

N64-22694 Lockheed Missiles and Space Co., Sunnyvale, Calif.

ELECTRONIC COUNTERMEASURES AND COUNTER-COUNTERMEASURES: AN ANNOTATED BIBLIOGRAPHY Supplement No. 1

George R. Evans, comp. Jul. 1963 186 p refs
(Contract N0w-63-0050-C)
(SB-63-64; Rept-8-40-63-12; AD-440887)

Specific areas of interest are jamming, antijamming, deception, interception, interference, and decoys. Although the search dealt primarily with active ECM and ECCM in radar systems and radar systems integrated with radio-communications systems, some significant references to passive countermeasures techniques and systems are included.

Author

N64-22711 Federal Aviation Agency, Oklahoma City, Okla Civil Aeromedical Research Inst.

BIOMEDICAL RESEARCH STUDIES IN ACCELERATION, IMPACT, WEIGHTLESSNESS, VIBRATION, AND EMERGENCY ESCAPE AND RESTRAINT SYSTEMS: A COMPREHENSIVE BIBLIOGRAPHY

Richard G. Snyder, John Ice, Judith C. Duncan, Alvin S. Hyde (AMRL), and Sidney Leverett, Jr., (School of Aerospace Med.) Dec. 1963 3088 p refs Sponsored in Cooperation with Aerospace Med. Div. and School of Aerospace Med.
(Contract DO-33(657)62-382)
(CARI-63-30; AD-601531)

The bibliography attempts a comprehensive listing of all scientific research in the areas of acceleration, vibration, deceleration, weightlessness, and protection and survival research. Scope of the fields surveyed includes rather broad areas of prolonged acceleration including blast and impact, vibration, weightlessness, and restraint and escape systems including capsules, ejection, and evacuation. Materials appearing as early as 1818 and as late as November 1963 are covered.

Author

N64-22957 Lockheed Missiles and Space Co., Sunnyvale, Calif.

ELECTROCHEMICAL BATTERIES: AN ANNOTATED BIBLIOGRAPHY

Peter S. Stromer, comp. Feb. 1963 156 p refs
(Contract AF 33(616)-7957)
(SB-63-14; Rept-2-02-63-1; AD-441578)

An extensive review of the recent (1961–1962) literature on electrochemical batteries and their components has been made. Emphasis has been placed on power sources for guided missile and spacecraft applications. Latest developments in electrolytes indicate a trend from liquid to solid forms for high temperature use. Wherever weight considerations are paramount, nickel-cadmium, silver-cadmium, silver-zinc, and magnesium components have largely replaced the older lead-acid combinations.

Author

N64-23100 Air Force Systems Command, Wright-Patterson AFB, Ohio Foreign Technology Div.

FORTY YEARS OF ASTRONOMY IN THE USSR, 1917–1957 (PART II) [BIBLIOGRAPHIYA RABOT PO ASTRONOMII VYPOLNENNYKH V SSSR ZA 1917–1957]

A. A. Mikaylov, M. S. Zverev, P. G. Kulikovskiy, A. G. Masevich, Ye. R. Mustel' et al 20 Jan. 1964 677 p refs Transl into ENGLISH from the Book "Astronomiya v SSSR za Sorok Let 1917–1957" Moscow, State Publishing House, Phys. and Math. Div., 1960
(FTD-TT-63-1149/1+2+4; AD-429520)

This bibliography of Soviet astronomical literature, dating from 1917 to 1957, contains more than 9,500 titles of books and other literature by 1,800 authors, both Russian and other nationals, as published in the Soviet Union. G.D.B.

N64-23272 Library of Congress, Washington, D.C. Aerospace Information Div.

SOVIET METEOROLOGY AND CLIMATOLOGY Compilation of Abstracts and Annotated Bibliography [1960–1963]

2 Jun. 1964 104 p refs Transl. into ENGLISH from Soviet Periodicals
(AID-P-64-37; AD-601123) OTS: \$9.10 ph

This is a compilation of abstracts and an annotated bibliography of Soviet meteorology and climatology from the Geophysical Reference Journals of 1962 and 1963 published in the U.S.S.R. Weather forecasting, cloud frequency and distribution, and ice accretion and glaze are covered. G.D.B.

N64-23274 California U., Berkeley Operations Research Center
BIBLIOGRAPHY ON MATHEMATICAL PROGRAMMING: QUADRATIC PROGRAMMING, NONLINEAR PROGRAMMING, PROGRAMMING UNDER UNCERTAINTY, INTEGER PROGRAMMING Notes on Operations Research—3
Richard W. Cottle et al 1 Mar. 1964 23 p refs
NSF-G-21034)
(ORC-64-6(RN))

N64-23330 Library of Congress, Washington, D.C. Aerospace Information Div.
PHENOMENA IN THE UPPER ATMOSPHERE. COMPILATION OF ABSTRACTS FROM SOVIET LITERATURE
10 Apr. 1964 24 p refs
(AID-P-64-19; AD-435478) OTS: \$2.60ph

Reported is a review of Soviet developments in selected problems in astrophysics and geophysics. Discussed are solar radiation and ionosphere, Van Allen Belts and cosmic rays, and arctic and antarctic communications. N.E.A.

N64-23345 Lockheed Missiles and Space Co., Sunnyvale, Calif.
VEHICLE DATA LINK REQUIREMENTS: AN ANNOTATED BIBLIOGRAPHY
George R. Evans, comp Aug. 1963 139 p refs
(SB-63-57; Rept.-5-57-63-3)

Primary interest of the search is centered on on-board instrumentation and on equipment for data such as telemetry, radio, and radar systems. Also of interest is ground equipment and systems; i.e., command and control, communications and tracking systems. Author

N64-23365 Lockheed Missiles and Space Co., Sunnyvale, Calif.
IONIZING RADIATION EFFECTS ON PERFORMANCE CAPABILITIES OF ASTRONAUTS: AN ANNOTATED BIBLIOGRAPHY
Eugene E. Graziano, comp. Nov. 1963 41 p refs
(SRB-63-13)

This selective bibliography consists of 82 references to literature specifically relating to ionizing radiation effects on human space travelers. Immediate and long-range effects on the eyes, and other tissues vital to optimum performance capabilities, were of special interest; antiradiation drugs were also of interest. The period covered in the search was from January to November 1963. Author

N64-23393* George Washington U., Washington, D.C.
EXO BIOLOGY Annotated Bibliography, 1951-1964
Joe W. Tyson and Ruby W. Moats, comp. Mar. 1964 78 p refs
(Grant NSG-485)
(NASA-CR-53806) OTS: \$7.60 ph

This annotated bibliography on exobiology includes descriptions of planetary environments, speculations on the

existence of life and the forms that life may assume under such conditions, and mechanisms for the discovery of life forms (remote sensing). It is based to a large extent on considerations of chemical and biological evolution on the planet earth. Author and subject indexes are provided. R.T.K.

N64-23616 California U., Livermore Lawrence Radiation Lab.
VORTEX TUBES, A BIBLIOGRAPHY
Brigitta M. Dobratz Apr. 1964 24 p refs
(Contract W-7405-ENG-48)
(UCRL-7829) OTS: \$0.50

N64-23880 Lockheed Missiles and Space Co., Sunnyvale, Calif.
AERODYNAMIC CHARACTERISTICS OF BODIES OF REVOLUTION WITH FINS: AN ANNOTATED BIBLIOGRAPHY
George R. Evans, comp. Jul. 1963 123 p refs
(Contract N0W-63-0050-C)
(SB-63-76; Rept.-8-40-63-10; AD-423823)

The bodies of revolution may be of any configuration. The references are listed either by personal author or, when there is no personal author, by title. The subject index is divided into three sections and lists bodies of revolution of arbitrary configuration with any type of fin, (cylinders, cones, and blunt bodies) and specific types of fins (canards, stabilizers, rudders, and wings); specific types of vehicles, such as Nike-Zeus, Skybolt, and Terrier. The specific aerodynamic characteristics are static stability, drag (axial force), pressure distribution, and force distribution. The Mach flow is from 0 to ∞ . The period covered is January 1960 through June 1963. Author

N64-23881 Lockheed Missiles and Space Co., Sunnyvale, Calif.
FUSION WELDING OF MAGNESIUM AND MAGNESIUM ALLOYS An Annotated Bibliography, Jan. 1962-May 1963
Jack B. Goldmann and Helen Mc Cormick, comp. Jul. 1963 32 p refs
(SB-63-52; Rept.-4-11-63-3)

Major emphasis of this report is placed upon fusion welding (TiG and MiG processes) of Mg-Li and Mg-Th alloys, 1/4-in. minimum thickness, with comparable data on fusion welding by these same processes for specific alloys of magnesium other than Mg-Li and Mg-Th. Physical properties, metallurgy of the weld, and inert gas welding techniques are shown for these alloys, plus any available data on prewelding and postwelding techniques and property changes. Applications include material gages of 1/4-in. and over, in a variety of configurations. The bibliography deals with welding techniques and physical metallurgy of Mg-Li alloys, Mg-Th alloys, and Mg alloys other than Mg-Li and Mg-Th; MiG and TiG welding processes for magnesium and its alloys; plus a few references to advances in MiG and TiG welding techniques in general. Author

N64-23882 Lockheed Missiles and Space Co., Sunnyvale, Calif.
THE GEOMAGNETIC FIELD: AN ANNOTATED BIBLIOGRAPHY
Eugene E. Graziano and Helen B. Mc Cormick, comp. Aug. 1963 64 p refs
(Contract AF 04(647)-787)
(SB-63-63; Rept. 3-56-63-2; AD-441621)

This bibliography consists of 183 selected references to recent literature on all aspects of the geomagnetic field, and to planetary and interplanetary fields. Actual measurements of magnetospheric phenomena were of particular interest. The time period covered in the literature survey was June 1962-June 1963, with selective coverage from 1958.

Author

N64-23883 Lockheed Missile and Space Co., Sunnyvale, Calif.

MICROMINIATURIZATION; ITS APPLICATION TO ELECTRONIC CIRCUITS AND COMPONENTS: AN ANNOTATED BIBLIOGRAPHY

Jack B. Goldmann, comp. Jun. 1963 60 p refs
(Contract AF 04(647)-787)
(SB-62-67; Rept.-3-35: 62-8; AD-410235)

Thin films, micromodules, solid-state devices and dot circuits are included in the aspects of microminiaturization of electronic circuits and components with which this annotated bibliography of 1962 publications is concerned. Particular emphasis is made in the direction of manufacturing development research and evaluation techniques.

Author

N64-23884 Lockheed Missiles and Space Co., Sunnyvale, Calif.

RF BLACKOUT IN PLASMA SHEATH SURROUNDING A RE-ENTRY VEHICLE: AN ANNOTATED BIBLIOGRAPHY

Jack B. Goldmann, comp. Apr. 1964 47 p refs
(Contract NOW-63-0050-c)
(SB-64-10; Rept.-2-60-64-23; AD-441586)

Both theoretical and industry-proven techniques of RF transmission during reentry have been emphasized in this annotated bibliography. There are 83 references that have appeared in print between the years 1960-1963. The arrangement of entries is alphabetical according to personal or corporate author. Author and corporate source indexes are included.

Author

N64-23885 Library of Congress, Washington, D.C. Aerospace Information Div.

PHENOMENA IN THE UPPER ATMOSPHERE Compilation of Abstracts from Soviet Literature

25 Jun. 1964 37 p refs
(AID-P-64-43; AD-601890) OTS: \$3.60 ph

This is a collection of abstracts from Soviet scientific literature on upper atmosphere phenomena, including ionosphere electron concentrations, solar radiation, Van Allen belts, cosmic rays, telluric currents, atmospheric electricity, nuclear bursts in the atmosphere, satellite and missile data, Arctic and Antarctic communications, and upper atmosphere meteorology.

G.D.B.

N64-24099 Library of Congress, Washington, D.C. Aerospace Information Div.

PHENOMENA IN THE UPPER ATMOSPHERE. SOLAR RADIATION AND THE IONOSPHERE Compilation of Abstracts from Soviet-Bloc Literature

1 May 1964 16 p refs
(AID-P-64-32; AD-600050) OTS: \$1.60 ph

This report contains 15 abstracts on the subject of solar radiation and the ionosphere.

A.W.

N64-24100 Library of Congress, Washington, D.C. Aerospace Information Div.

SOVIET LITERATURE ON LIFE SUPPORT SYSTEMS. PART A: BIOSCIENCES Compilation of Abstracts

6 May 1964 19 p refs
(AID-P-64-33; AD-600129) OTS: \$1.60 ph

This is a compilation of abstracts on space medicine and biology, space physiology, and perceptual physiology.

E.C.

N64-24109* Brown Engineering Co., Inc., Huntsville, Ala. Systems Evaluation and Test Div.

PRESSURE DROP IN FLEXIBLE METAL HOSES, BELLOWS, AND GIMBAL JOINTS An Annotated Bibliography

J. G. Belcher, Jr. 15 May 1964 9 p refs
(Contract NAS8-11166)
(NASA-CR-56540; ER-1174)

The following are included in this bibliography: (1) the effect of the character of surface roughness on velocity distribution and boundary resistance; (2) flexible components for pneumatic ducting system; (3) design and testing of large gas ducts; (4) pressure losses in flexible metal tubing; (5) designing for duct flexibility with bellows joints; (6) determining pressure drop in a flexible metal hose; (7) pressure-loss factors for internally linked bellows joints; (8) bellows design for aerospace vehicles; (9) friction factors of straight and curved flexible metal hoses as a function of Reynolds number; (10) friction factors for flow through corrugated hose and bellows; (11) airflow equations; (12) pressure losses in a hose line; (13) friction factors in corrugated metal pipe; (14) pressure losses in a flexible metal hose utilized in propulsion fluid systems; (15) flow tests with bellows expansion joints; and (16) effect of wire wraps on the pressure drop for axial turbulent flow through rod bundles.

R.T.K.

N64-24116* Allied Research Associates, Inc., Concord, Mass. **BIBLIOGRAPHY ON BIOSENSORS. A SAMPLING OF THE WORLD LITERATURE 1900-1963**

J. Healer Dec. 1963 340 p refs 3rd Ed.
(Contract NASw-535)

(NASA-CR-56347; ARA-T-9211-5 Vol. II) OTS: \$19.75 ph
This bibliography was compiled during a program for assembly, evaluation, analysis, and application of biosensing devices. It was placed in an IBM-card code system, and the cards are available.

A.W.

N64-24140 Library of Congress, Washington, D.C. Aerospace Information Div.

FORECASTING SOLAR FLARES: A REVIEW OF THE WORK OF A. B. SEVERNYY IN THE PERIOD 1960-1962 Selected Abstracts

28 Mar. 1963 25 p
(AID-P-63-43) OTS: \$2.60 ph

The abstracts presented in this preliminary report are considered to be indicative of the development of solar flare investigations at the Crimean Astrophysical Observatory. A new method of forecasting solar flares two to three days in advance was proposed by A. B. Severnny. The abstracts cover Severnny's method and a serious objection to it. An attempt is made to evaluate the Severnny method. Individual Soviet-bloc (Rumanian, Polish, Czech, and Ukrainian) works on solar flare research have also been included when deemed significant.

Author

N64-24244* National Aeronautics and Space Administration, Washington, D.C. Scientific and Technical Information Div.
LUNAR SURFACE STUDIES. A CONTINUING BIBLIOGRAPHY

1964 102 p refs

(NASA-SP-7003) OTS: \$2.25

This is an annotated bibliography on lunar surface studies, compiled from journals during 1962, 1963, and 1964. J.L.D.

N64-24333 Picatinny Arsenal, Dover, N.J. Plastics Technical Evaluation Center

SUBJECT INDEX, BIBLIOGRAPHY, AND CODE DESCRIPTION OF TECHNICAL CONFERENCE PAPERS ON PLASTICS: 10 FEBRUARY 1962-10 FEBRUARY 1963

Arnold E. Molzon Aug. 1963 108 p refs

(PLASTEC-14; AD-423560) OTS: \$2.50

The papers presented at the technical conferences on plastic materials and related technology, within a 1-year period ending 10 February 1963, have been listed and indexed by subject. Over 500 papers from 22 conferences are covered. This report serves as a guide to the subjects presented, and by means of a numerical code system, it tells the reader what type of information each article contains. Included are a bibliography and lists of references on plastic materials and technical data. Author

N64-24395 National Academy of Sciences-National Research Council, Washington, D. C.

NUCLEAR THEORY REFERENCE BOOK FOR 1961 AND 1962. COMPILATION OF NUCLEAR THEORY INDEX CARDS

R. Nakasima and H. Ogata, ed. Dec. 1963 175 p refs

(Sponsored by AEC) GPO: \$1.25

N64-24920 Lockheed Missiles and Space Co., Sunnyvale, Calif.

SHOCK AND VIBRATION IN SPACE ENVIRONMENT: AN ANNOTATED BIBLIOGRAPHY

Charles G. Gros, comp. Apr. 1963 56 p refs

(Contract AF 04(647)-787)

(SB-63-24; Rept.-3-35-63-3; AD-441579)

This work treats of shock and vibration, in combination with each other and/or with other space environmental parameters. The period covered, with a few earlier exceptions, is from 1960 through 1962. Personal author, corporate author, and subject indexes are included. Author

N64-24921 Lockheed Missiles and Space Co., Sunnyvale, Calif.

GEARS, BEARINGS AND LUBRICANTS FOR AEROSPACE APPLICATIONS: AN ANNOTATED BIBLIOGRAPHY

Helen M. Abbott, comp. Aug. 1963 93 p refs

(Contract AF 94(647)-787)

(SB-63-59; Rept.-3-77-63-1; AD-441583)

This compilation of 189 annotated references is divided into two parts: (1) gears and bearings, and (2) lubricants and lubrication techniques. This material provides a coverage of the literature from October 1961 through August 1963. Subject, author, and corporate source indexes are included. Author

N64-24951 Library of Congress, Washington, D.C. Aerospace Information Div.

SKY ILLUMINATION PHENOMENA Annotated Bibliography, 1957-1963

24 Jun. 1964 206 p refs

(AID-B-64-42; AD-601846) OTS: \$14.00 ph

This annotated literature survey of Soviet-bloc research between 1957 and 1963 includes publications on airglow, auroras, noctilucent clouds, zodiacal light, gegenschein, twilight, and instrumentation. Entries are arranged alphabetically by author within each of the subject groups. When the original source is not available, a secondary source is indicated. An introduction, describing the main developments of Soviet research during 1957-1963 precedes the bibliographic entries. An author index is included. G.D.B.

N64-25207 California U., Los Angeles Aerosonics Lab.
AN AEROSONICS BIBLIOGRAPHY Supplement No. 1

Alan Powell and T. J. B. Smith Apr. 1964 23 p refs

(Contract Nonr-233(62))

(Rept.-64-20; AD-600455)

This supplementary bibliography is to be used in conjunction with the University of California, Los Angeles, Engineering Report No. 63-51; it contains available references to the open literature on aerosonics up to March 1964. In addition, the scope of the bibliography has been enlarged to include references to the fluid dynamics of supersonic jet flows. I.v.L.

N64-25307 Harry Diamond Labs., Washington, D.C.

FLUID AMPLIFICATION TECHNOLOGY: A BIBLIOGRAPHY OF DIRECT CONTRIBUTIONS

Vondell Carter and Jonathan Fine *In its* Proc. of the Fluid Amplification Symp., Vol. III May 1964 p 131-208 refs (See N64-25301 17-11)

Contained in this bibliography are 143 citations of publications and patents considered contributory to the technology of "pure fluid amplifiers," that is, those fluid devices containing no moving parts. Included are reports (industry and Government), theses, papers, articles (journal and periodicals), and patents. Approximately 80% of the material cited has been abstracted. Author

N64-25511 Lockheed Missiles and Space Co., Sunnyvale, Calif.

RADIATION EFFECTS UPON EXPERIMENTAL ANIMALS, MAN, AND PLANTS: AN ANNOTATED BIBLIOGRAPHY, VOL. II, M-Z

Jack B. Goldmann, comp. Jan. 1963 440 p refs For Vol. I see N64-20517 13-16

(SB-62-60, vol. II; Rept.-5-10-62-54, vol. II; AD-438178)

This is an annotated bibliography of publications relating to radiation effects on living matter, arranged alphabetically by author. An author index is included. G.D.B.

N64-25644* National Aeronautics and Space Administration, Washington, D.C.

INVESTIGATION OF THE UPPER LAYERS OF THE ATMOSPHERE AND SPACE. A BIBLIOGRAPHY [IS-SLEDOVANIYE VERKHNIKH SLOYEV ATMOSFERY I KOSMICHESKOGO PROSTRANSTVA]

Jul. 1964 71 p refs Transl. into ENGLISH from Bibliog. Byul. (Moscow), no. 2, 1964 p 3-46

(NASA-TT-F-229) OTS: \$1.75

N64-25666 Lockheed Missiles and Space Co., Sunnyvale, Calif.

BERYLLIUM: A SURVEY OF THE LITERATURE, JANUARY-JUNE 1963: AN ANNOTATED BIBLIOGRAPHY

Jack B. Goldmann, comp. Jul. 1963 81 p
(Contract NOrd-17017)
(SB-63-54; Rept.-3-80-63-5; AD-439444)

The following annotated bibliography covers publications released during the first 6 months of 1963. Citations are arranged alphabetically by author under broad subject headings of alloys; analysis; applications; bibliographies; compounds; corrosion; fabrication techniques; joining; metallurgy; oxides; powder metallurgy and casting; and processing and properties. References to the use of beryllium in fuels, nuclear reactor applications, effects of radiation, and the Cu-Be alloys have been omitted. Author

N64-25766* Lockheed Missiles and Space Co., Sunnyvale, Calif.

CONVERSION COATINGS FOR ALUMINUM ALLOYS: AN ANNOTATED BIBLIOGRAPHY

Jack B. Goldmann, comp. Dec. 1963 32 p refs
(Contract NAS8-5600)
(NASA-CR-56317; SB-63-82; Rept.-8-30-63-6)

The chemical conversion coatings with which this annotated bibliography is concerned include chromate, phosphate, and oxide processes. Author

N64-25864 California U., Livermore Lawrence Radiation Lab.

EFFECTS OF WATER VAPOR AND OTHER GASES ON URANIUM, THORIUM, PLUTONIUM, AND CARBIDES. A BIBLIOGRAPHY

Brigitta M. Dobratz [1964] 20 p
(Contract W-7405-ENG-48)
(UCRL-7836) OTS: \$0.50

Corrosion of reactor fuel elements has long been a problem. Several bibliographies have been published on this subject. With the rapidly increasing number of publications in this field, scientists have requested that a literature search be conducted in the specific area of corrosion effects on these materials by water vapor, steam, moist air, and gases. This bibliography contains selected references, mainly from report literature, on corrosion and oxidation of plutonium, thorium, and uranium, as well as their carbides, by water vapor and gases, for the period 1951 to 1964. Author

N64-25866 Atomics International, Canoga Park, Calif.
BIBLIOGRAPHICAL SURVEY OF SWAP FUEL MATERIALS: ZIRCONIUM-URANIUM HYDRIDE AND RELATED ZIRCONIUM AND URANIUM SYSTEMS, VOLUME I

A W Barsell, L D Montgomery, and J T Roberts [1964] 220 p refs
(Contract AT(11-1)-GEN-8)
(NAA-SR-9525, Vol. I) OTS: \$3.00

A two-volume bibliographical survey of SNAP fuel materials, reviewing all investigations conducted on zirconium-uranium-hydrogen systems, is presented. Recent unclassified publications on the individual metals, alloys, oxides, and hydrides are included in appendix form. Emphasis was placed upon experimental, quantitative data resulting from the investigations in their respective temperature and composition ranges. Also, particular interest was given to thermodynamic property data obtained in these related studies, and these data are subject-indexed for each material with the respective temperature ranges. Abstract data may be found either through author's name, subject matter, or report number indexes common to and appearing in each volume. Author

N64-25874* National Aeronautics and Space Administration, Washington, D.C.

COMMUNICATIONS SATELLITES. A CONTINUING BIBLIOGRAPHY

Jul. 1964 95 p refs
(NASA-SP-7004) OTS: \$1.00

An annotated bibliography of reports and documents dealing with the development, operation, and problems of communication satellites is presented. P V E

N64-25948* National Aeronautics and Space Administration, Washington, D.C.

AEROSPACE MEDICINE AND BIOLOGY - Continuing Bibliography, 1 Jan.-31 Mar. 1964

Jul. 1964 293 p refs
(NASA-SP-7011) OTS: \$2.00

Aerospace Medicine and Biology, a monthly publication, is an annotated bibliography concentrating on the biological, physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the earth's atmosphere or in interplanetary space. References describing similar effects on biological organisms of lower order will also be included. Such related topics as sanitary problems, pharmacology, toxicology, safety and survival, life support systems, exobiology, and personnel factors will receive attention. In general, emphasis will be placed on applied research, but references to fundamental studies and theoretical principles related to experimental development also qualify for inclusion. I v L

N64-26023 American Meteorological Society, Boston, Mass.
ANNOTATED BIBLIOGRAPHY ON LUNAR INFLUENCES ON ATMOSPHERIC AND GEOPHYSICAL PHENOMENA. PART II

Wilhelm Nupen and Geza Thuronyi. *In its Meteorol. and Geostrophys Abstracts*, v. 14, no. 12, Dec. 1963 p 3958-4019 (See N64-26022 18-12)

This bibliography comprises over 300 abstracts of the most important literature relating to lunar influences on atmospheric, ionospheric, geomagnetic, and cosmic ray phenomena. Literature on lunar influences on gravity, or on oceanic and earth tides on the one hand, and on weather phenomena on the other hand has, as a rule, been omitted. A selection of papers of historical interest, dating back as far as Laplace (1825), who was the first to work out a theory of atmospheric tidal motion and to determine its magnitude, has been included. I v L

N64-26029 Iowa State U. of Science and Tech., Ames Ames Lab.

HIGH VACUUM LIQUID METAL DISTILLATION: AN ANNOTATED BIBLIOGRAPHY

D E Westerheide (Gen. Dyn./Fort Worth) and George Burnet May 1964 29 p refs
(Contract W-7405-ENG-82)
(IS-799) OTS 0/75

This annotated bibliography consists of a chronological survey in which each reference is identified by investigators and the work reported briefly summarized, and a conventional bibliography arranged in alphabetical order by investigator. References selected deal with the theory and practice of high vacuum liquid metal distillation and cover the period from 1912 through 1963. All pertinent publications appearing in Chemical Abstracts and Nuclear Abstracts were included as were several unpublished theses. Author

N64-26298 Library of Congress, Washington, D.C. Aero-space Technology Div.

MAGNETIC FIELD PRODUCTION; COMPREHENSIVE REPORT Surveys of Soviet-Bloc Scientific and Technical Literature

20 Jul. 1964 84 p refs
(ATD-P-64-46)

Subjects covered include pulsed field production, continuous field magnets, analysis of mechanical stresses in coils, superconductivity, magnetic fields in plasma and fusion physics, and magnetic fields in particle physics. The principal conclusion is that Russian scientists seem to rely heavily on the promises proffered by superconductivity, to the neglect of conventional methods of high-field production. A list of nearly 260 references is included. D.E.W.

N64-26322 National Academy of Sciences, National Research Council, Washington, D.C. Prevention of Deterioration Center
EFFECT OF MICROORGANISMS ON NATURAL AND SYNTHETIC RUBBERS Bibliography

Hans Janecka, comp. 2 Dec. 1963 12 p refs
(PDL-50015; AD-600644)

N64-26372* Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena

EFFECTS OF STERILIZING AGENTS ON MICROORGANISMS Supplement to Literature Search No. 260

Janet Swift, comp. Mar. 1963 74 p refs
(Contract NAS7-100)
(NASA-CR-58123) OTS: \$7.60 ph

A partially annotated bibliography of the following is presented: (1) physical agents—general radiation, gamma radiation, X-radiation, ultraviolet radiation, acoustics, and temperature variation; (2) chemical agents—ethylene oxide, β -propiolactone, ozone, propylene oxide, pesticides, and antibiotics; and (3) miscellaneous agents—general agents physical-chemical combinations. I.v.L.

N64-26714 Lockheed Missiles and Space Co., Sunnyvale, Calif.

THE GROWTH OF METAL AND METALLIC OXIDE WHISKERS: AN ANNOTATED BIBLIOGRAPHY

Charlie M. Pierce, comp. May 1964 54 p refs
(SB-63-68; Rept.-4-11-63-7)

This publication consists of references primarily involved with the growth mechanism of whiskers, the metals most susceptible to whisker growth, optimum conditions for growth, and the rates of whisker growth. Most of the references were published after 1953. The references are alphabetically arranged according to the first author. Personal author and subject indexes are included. Author

N64-26717 Chicago U., Ill. Enrico Fermi Inst. for Nuclear Studies

RESEARCH ON THE SOLAR-GEOPHYSICAL ASPECTS OF COSMIC RADIATION AND MAGNETO-HYDRODYNAMICS Final Technical Report, 18 Dec. 1954-30 Nov. 1962

J. A. Simpson 3 Sep. 1963 51 p
(Contracts AF 19(604)-4554; AF 19(604)-1288)
(AFCRL-63-893; AD-437872)

Some 60 papers were published during the seven-year period covered by this final report. Most of these papers resulted from the work of the two staff members, E. N. Parker

and J. A. Simpson. These papers covered both theoretical and experimental researches concerned with the properties of the interplanetary medium including magnetic fields and plasma density, the solar production of high-energy particles and their propagation through the interplanetary medium, and selected topics on the properties of the geomagnetic field (geomagnetic storms, particle motions in the geomagnetic field, etc.). Included in this report is a list of publications, as well as abstracts of their contents. Also attached is a listing of the scientific and engineering staff who contributed to the work. Author

N64-26753* National Aeronautics and Space Administration, Washington, D.C.

BIBLIOGRAPHIES ON AEROSPACE SCIENCE: A CONTINUING BIBLIOGRAPHY, JANUARY 1962-MAY 1964

[1964] 75 p refs
(NASA-SP-7006)

All references in SP-7006 are bibliographies that have been announced in either "Technical Publications Announcements" (TPA-Vol. 2, 1962), or its successor, "Scientific and Technical Aerospace Reports" (STAR-Vol. 1, 1963) and Vol. 2 (Jan.-May, 1964), or in "International Aerospace Abstracts" (IAA-Vol. 3, 1963) and Vol. 4 (Jan.-May, 1964). They were introduced into the NASA information system during the period January 1962 to May 1964. Each entry in the bibliography consists of a citation and, when available, an abstract. A subject index is included. I.v.L.

N64-26820 Lockheed Missiles and Space Co., Sunnyvale, Calif.

THE FUNDAMENTAL EFFECTS OF RADIATION AND "HOT ATOMS" ON SIMPLE COMPOUNDS: AN ANNOTATED BIBLIOGRAPHY

Charlie M. Pierce, comp. and Richard A. Glass, comp. Apr. 1963 335 p refs
(Contract AF 04(647)-787)
(SB-63-37; Rept.-8-19-63-9; AD-443451)

References that are related to the effects of hot atoms and radiation on simple compounds and aqueous solutions are listed. Particular attention was given to the selection of references that involve the halogen compounds. The references are arranged according to the first author. Indexes for corporate author, personal author, and subject are included. The period covers the years 1947 to January 1963. Author

N64-26821 Lockheed Missiles and Space Co., Sunnyvale, Calif.

PACKAGING AND INTERCONNECTIONS FOR MINIA-TURIZED ELECTRONIC SYSTEMS: AN ANNOTATED BIBLIOGRAPHY

Helen B. McCormick, comp. Jun. 1963 238 p refs
(Contract NOrd-17017)
(SB-63-51; Rept.-3-80-63-4; AD-443450)

Overall aspects of microelectronics packaging are reported, with special emphasis upon welded interconnections, upon failure modes, and reliability testing. Possibilities for maintenance and repair are noted, such as repair of printed circuits, exact matching of encapsulating compounds, plug-in modules, especially designed connectors, and other devices for repair of a single component, wiring lead, or wafer without the necessity for discarding the unit package. The bibliography is in three major parts, with the individual abstract arrangement alphabetical by author or corporate source within the subject categories for each of the major sections. Numbering is in sequence

for the entire bibliography (599 refs). Separate indexes are provided for personal and for corporate authors, with the individual abstracts referred to by item numbers rather than by pages. Welded interconnections are dealt with; techniques for forming these connections; advantages over soldered connections; possibilities for welded connections in thin film or integrated circuits. Packaging and production problems are treated against the background discussion of microminiaturization and microcircuitry—theories, trends, comparisons, potential. Failure modes and reliability testing, with test data and evaluations of specific techniques and equipment, are given.

Author

N64-26822 Lockheed Missiles and Space Co., Sunnyvale, Calif.

COSMIC RADIATION: AN ANNOTATED BIBLIOGRAPHY, 1960-1963

Peter R. Stromer and Helen B. McCormick, comp. May 1963 77 p refs

(Contract AF 04(647)-787)

(SB-63-71; Rept.-3-56-63-4; AD-443485)

This bibliography contains a comprehensive selection of reference material on the title subject with emphasis on the near earth space environment as differentiated from interplanetary space. Period of coverage is from 1960 to early 1963.

Author

N64-26823 Lockheed Missiles and Space Co., Sunnyvale, Calif.

ADHESIVES, SEALS, GASKETS, AND POLYMERIC MATERIALS FOR AEROSPACE APPLICATIONS: AN ANNOTATED BIBLIOGRAPHY

Helen M. Abbott, comp. Nov. 1963 202 p refs

(Contract AF 33(657)-10107)

(SB-63-77; Rept.-3-06-63-2; AD-443256)

This bibliography contains selected references to polymeric materials, seals, gaskets, adhesives, and sealants for use in aerospace applications. The environmental conditions that will affect materials in space are exposure to high vacuum, high and low temperature extremes, ultraviolet and high-energy radiation, as appropriate to the application of the material. References to tests conducted on elastomeric materials in contact with liquid rocket fuels and oxidizers are included under the area of chemical compatibility. These references were compiled as an aid to future efforts in the evaluation of various materials needed to perform specific functions for use in aerospace applications. Author, corporate source, and subject indexes are included to assist in locating specific items. Author

N64-26900 International Union of Pure and Applied Chemistry, Basle (Switzerland) Commission on High Temperatures and Refractories

BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF MATERIALS IN THE CONDENSED STATE, VOLUME 1964, NUMBER 2, APRIL, MAY, JUNE 1964

J J Diamond, ed (Natl. Bur. Std., Washington) [1964] 70 p refs

N64-27001 Gt. Brit. Ministry of Aviation, Mottingham Technical Information and Library Services

NOISE BIBLIOGRAPHY, VOL. 3

Jun. 1964 24 p refs

(TIL/BIB/73/Vol. 3)

An annotated bibliography on noise is presented. The majority of the documents included are directly allied to aircraft noise, either in theory or practice. A publisher and author index is presented.

J.L.C.

N64-27220 Lockheed-Georgia Co., Marietta Scientific and Technical Information Department

BIBLIOGRAPHY ON RELIABILITY

Harold S. Sharp Jun. 1964 27 p refs

N64-27340 Lockheed Missiles and Space Co., Sunnyvale, Calif.

IONIZING RADIATION EFFECTS ON PERFORMANCE CAPABILITIES OF ASTRONAUTS: AN ANNOTATED BIBLIOGRAPHY

Eugene E. Graziano, comp. Nov. 1963 41 p refs

(Rept.-5-59-63-1; SRB-63-13; AD-441587)

This selective annotated bibliography consists of 82 references to literature specifically relating to ionizing radiation effects on human space travelers. Immediate and long-range effects on the eyes and other tissues vital to optimum performance capabilities were of special interest. Antiradiation drugs were also of interest. The period covered in the search was from January to November 1963.

Author

N64-27346 Witwatersrand U., Johannesburg (Union of South Africa)

RESEARCH ON BOILING. A BIBLIOGRAPHY

Anita Van Hoogstraten, comp. Jan. 1964 84 p refs

(Rept.-19)

N64-27351 Rocketdyne, Canoga Park, Calif.

SOURCES OF INFORMATION IN HUMAN FACTORS ENGINEERING

George A. Peters and Frank S. Hall 1 Jul. 1964 112 p refs

(RH-3398-E)

This is a compilation of various publications related to all aspects of human-factors engineering, both military and commercial. The bibliography is divided into reference sources, regulatory and guidance documents, descriptive publications, and illustrative reports.

G.D.B.

N64-27521 HRB-Singer, Inc., State College, Pa. Technical Information Center

BIBLIOGRAPHY ON THE IONOSPHERE AND UPPER ATMOSPHERE, 1961-1963

Benita Bulera Palluconi Jun. 1964 236 p refs

(B-4; AD-441450)

N64-27793 Lockheed Missiles and Space Co., Sunnyvale, Calif.

AERODYNAMIC CHARACTERISTICS OF BODIES OF REVOLUTION WITHOUT FANS An Annotated Bibliography, Jan. 1960-Jun. 1963

George R. Evans, comp. Jul. 1963 219 p refs

(Contract NOW-63-0050-c)

(SB-63-75; Rept.-8-4-63-13; AD-440886)

The bodies of revolution may be of any configuration. The references are listed by personal author or, in the absence of one, listing is by title. The first 15 references are listings of bibliographies, handbooks, and literature surveys of aerodynamics in general. Source-agency and subject indexes are included. The subject index is divided as follows: (1) bodies of

revolution with arbitrary configuration; (2) specific types of configurations, such as cones, cylinders, and blunt bodies; and (3) specific vehicles, e.g., Polaris, Titan, and Minuteman.

Author

N64-27835* National Bureau of Standards, Boulder, Colo. Cryogenic Engineering Lab. Div.

A BIBLIOGRAPHY OF THERMOPHYSICAL PROPERTIES OF ARGON FROM 0 TO 300°K

L. A. Hall, J. G. Hust, and A. L. Gosman 12 Jun. 1964 104 p refs

(NASA Order R-45)

(NASA-CR-56793; NBS-TN-217) GPO: \$0.55

A bibliography of 450 references is presented for mechanical, thermodynamic, and transport properties of argon from 0° to 300° K. Each article has been reviewed and coded with regard to properties studied, type of article (i.e., experimental, theoretical, etc.), and method of presentation of the data. The temperature and pressure ranges for each property under consideration are also given. An index was prepared according to property with 4 subcategories: solid, liquid, gas up to 200° K, and gas above 200° K.

Author

N64-28104 Gt. Brit. Dept. of Scientific and Industrial Research Warren Spring Lab.

HUMAN SCIENCES IN INDUSTRY (ANNOTATED BIBLIOGRAPHY). PART I: ERGONOMICS

Jul. 1964 111 p refs

This annotated bibliography covers the following topics: biotechnology; systems of men and machines; visual inputs and processes; auditory inputs and processes, including speech production and intelligibility; other sensory inputs and processes; body measurements and basic physiological capacities; basic and complex motor performance; design of controls and integration with displays; layout of panels and consoles; design of work space, equipment, and furniture; clothing and personal equipment; special environmental factors affecting performance; individual factors, work conditions, and task characteristics that affect behavioral efficiency; training aids and devices and their use.

R.T.K.

N64-28211* National Aeronautics and Space Administration, Goddard Space Flight Center, Greenbelt, Md.

SURVEY OF THE LITERATURE ON NONMAGNETIC MATERIALS FOR USE IN SPACECRAFT

J. B. Crooks *In its* Goddard Summary Workshop Program in Meas. and Simulation of the Space Environ. [1963] 46 p refs (See N64-28201 20-23) OTS: \$19.75 ph

A partially annotated bibliography is presented that represents a literature survey of possible nonmagnetic materials for use in spacecraft or in other aerospace applications. Topics included in the bibliography are these: (1) weakly magnetic materials; (2) the susceptibility of organic compounds; (3) ferromagnetism and antiferromagnetism in nonferrous alloys; (4) "completely" nonmagnetic alloys; and (5) the mechanical and physical properties of nonferrous metals and plastics.

I.v.L.

N64-28303 Lockheed-Georgia Co., Marietta Scientific and Technical Information Dept.

BIBLIOGRAPHY ON AERONAUTICAL WEIGHT ESTIMATION AND CONTROL [1957-MAR. 1964]

C. D. Rife, comp. 1 Aug. 1964 19 p refs

N64-28317* Documentation Incorporated, Bethesda, Md. Man-Machine Information Center

BIBLIOGRAPHY RELATED TO HUMAN FACTORS SYSTEM PROGRAM, JULY 1962-FEBRUARY 1964

Richard J. Potocko Washington, NASA, 1964 242 p refs (NASA-SP-7014) OTS: \$3.50

N64-28421 Princeton U., N.J. Plasma Physics Lab.

A BIBLIOGRAPHY ON MAGNETIC DIFFUSION AND DRIFT INSTABILITIES

Francis F. Chen Jun. 1964 23 p refs

(Contract AT(30-1)-1238)

(MATT-285)

N64-28451 Lockheed Missiles and Space Co., Sunnyvale, Calif.

CREATIVITY, INNOVATION, AND INVENTION: AN ANNOTATED BIBLIOGRAPHY

George R. Evans and Peter R. Stromer, comp. Aug. 1964 18 p

The recent business management literature has been surveyed to assess the current trends and developments in the field of creativity, innovation, and invention. The literature reveals that some tentative yardsticks are now available to identify creative talent and the means for optimizing its usage in industry. The importance of innovation and its successful implementation by both the military and the aerospace industry is stressed as companies seek to adapt their work force and facilities to new markets.

Author

N64-28509 Ohio State U. Research Foundation, Columbus Antenna Lab.

ANTENNA LABORATORY PUBLICATIONS: ELECTROMAGNETIC SCATTERING, 1947-DECEMBER 1963

[1963] 58 p refs

(AD-440869)

This listing is supplied as a ready reference to publications in the general area of scattering, radar cross-section, and related topics. The compilation is in four parts—published papers, oral papers, theses and dissertations, and technical reports. The published papers are readily available in the various journals. Many of the oral papers were also published as part of a symposium or conference record. When such is the case, the paper is listed under both published papers and oral papers. Classified contractual reports are identified.

Author

N64-28694 International Union of Pure and Applied Chemistry, Basle (Switzerland) Commission on High Temperatures and Refractories

BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF GASES AND GAS-CONDENSED PHASE REACTIONS, NO. 12

L. Brewer, comp. (Calif. U., Berkeley) 30 Jun. 1964 26 p refs

N64-28739 California U., Livermore Lawrence Radiation Lab.

RADIATION EFFECTS ON NOBLE METALS Bibliography

Brigitta M. Dobratz 14 Apr. 1964 33 p

(Contract W-7405-ENG-48)

(UCRL-7810) OTS: \$0.75

N64-28887* Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena

CORROSIVE EFFECTS OF PURE AND DISTILLED WATER
 Kay Haines 16 Jan. 1964 13 p refs
 (NASA-CR-58640; JPL Lit. Search-567) OTS: \$1.60 ph

This contains 47 abstracts on the subject taken from books and papers, proceedings and symposia, reported in Chemical Abstracts, Corrosion Abstracts, Engineering Index, and the American Ceramic Society Journal. A.W.

N64-28889* Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena

THE MOSSBAUER EFFECT

Marjorie M. Ford 2 Apr. 1964 15 p refs
 (NASA-CR-58592; JPL Lit. Search-512) OTS: \$1.60 ph

These 96 abstracts deal with the Mossbauer effect in the fields of gravitation, relativity, solid-state physics, lattice mechanics, elementary particle-nuclei, and magnetic properties of solids. A.W.

N64-29314 Lockheed Missiles and Space Co., Sunnyvale, Calif.

SEPARATION AND EJECTION SYSTEMS OF FLIGHT VEHICLES: BIBLIOGRAPHY

Helen M. Abbott, comp. Jul. 1964 52 p refs
 (Contract NOW-63-0050-c)
 (SB 64-14; Rept.-2-60-64-35; AD-445143)

The references are arranged alphabetically by corporate source. Abstracts are given where possible, but are eliminated in cases that would result in the bibliography becoming classified. Author

N64-29522* Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena

ASTRONAUTICS INFORMATION. ELECTRIC PROPULSION Literature Search No. 587

Judith Hayes, comp. Jun. 1964 120 p refs
 (Contract NAS7-100)
 (NASA-CR-58361; JPL-AI/LS-587) OTS: \$9.60 ph

This literature search has been compiled to update and supplement a search entitled "Electrically Propelled Spacecraft and Associated Subjects" issued in May 1962. The annotated references are classified into five general categories: General, Electromagnetic, Electrostatic, Electrothermal, and Nuclear-Electric. Within each section, references are arranged in chronological order. An author index and corporate-source index are included. D.S.G.

N64-29655 California U., Livermore Lawrence Radiation Lab.

HOLMIUM, A BIBLIOGRAPHY 1955 TO APRIL 1964

Carl J. Wensrich [1964] 37 p refs
 (Contract W-7405-ENG-48)
 (UCRL-7719) OTS: \$0.75

N64-29676 Tufts U., Medford, Mass. Inst. for Psychological Research

HUMAN ENGINEERING BIBLIOGRAPHY, 1961-1962

Paul G. Ronco et al. Washington, ONR, Oct. 1963 398 p refs
 (Contract Nonr-494(13))
 (ONR-ACR-86; AD-602386) OTS: \$5.00

This bibliography comprises the following: (1) a topical outline that defines over 300 topic headings established for

this bibliography; (2) an alphabetic index of the common search terms that would aid those using this bibliography but who are unfamiliar with the topic headings; (3) an annotated bibliography of some 1,745 citations; and (4) an index of the authors of these citations. Author

N64-29779 Oak Ridge National Lab., Tenn. Div. of Technical Information Extension

RADIOISOTOPES IN WORLD INDUSTRY: ABSTRACTS OF SELECTED FOREIGN LITERATURE

Aug. 1964 130 p refs
 (TID-6613(Suppl. 5)) OTS: \$2.50

An annotated bibliography of 500 articles is presented. The abstracts are grouped by subject and subgrouped by country. The subject categories are as follows: (1) applications by topic, e.g., adsorption; (2) applications by industry; (3) health and safety, and (4) instruments. Author and country indexes are appended. In addition, an index to the Library of Congress card numbers is given for the abstracts. (U.S. AEC Commission, Division of Technical Information, July 1964.) I.v.L.

N64-29866 Army Materiel Command, Hanover, N.H. Cold Regions Research and Engineering Lab.

BIBLIOGRAPHY ON SNOW, ICE, AND PERMAFROST WITH ABSTRACTS. CUMULATIVE INDEX, VOLS. I-XVII

Frank M. Marson et al. Jun. 1964 260 p
 (CRREL-12; AD-602778)

N64-30374 Los Alamos Scientific Lab., N. Mex.

THEORY OF GRAVITATION 1959-1963 Bibliography

Helen J. Chick 1 Sep. 1964 69 p refs
 (Contract W-7405-ENG-36)
 (LAMS-3099) OTS: \$1.75

N64-30500 Aerospace Medical Div. Aerospace Medical Research Labs. (6570th), Wright-Patterson AFB, Ohio

BIBLIOGRAPHY ON MAINTENANCE PERSONNEL PERFORMANCE MEASUREMENT

William B. Askren, Jr. Jun. 1963 23 p refs
 (AMRL-Memo-P-45; AD-439610) OTS: \$2.60

N64-30625 Mound Lab., Miamisburg, Ohio

SHOCK TUBES: A BIBLIOGRAPHY

Arnold M. Melnick 11 Sep. 1964 56 p refs
 (Contract AT(33-1)-GEN-53)
 (MLM-1189) OTS: \$1.25

N64-30650 California U., Livermore Lawrence Radiation Lab.

MONTE CARLO METHODS: A BIBLIOGRAPHY COVERING THE PERIOD 1949 TO 1963

Rose Kraft and Carl J. Wensrich 1 Apr. 1964 113 p refs
 (Contract W-7405-ENG-48)
 (UCRL-7823)

N64-30758 National Academy of Sciences-National Research Council, Washington, D.C.

POLYURETHANE COATINGS: USE AND PERFORMANCE An Annotated Bibliography

Hans Janecka, comp. Mar. 1964 15 p refs
(PDL-50915; AD-601279) OTS: \$0.50

The annotated bibliography contains information on coating materials from polyurethanes--their preparation and properties; their uses as marine paints, aircraft materials, construction materials, linings for steel fuel-storage tanks, protective coatings, and the like; and their application. A.W.

N64-30805 Oak Ridge National Lab., Tenn.
FIRE AND EXPLOSION PROTECTION OF GLOVE-BOX FACILITIES A Literature Search
Sidney F. Lanier, comp. Sep. 1964 57 p refs
(TID-3578) OTS: \$3.00

A total of 379 references are cited on the safety design of facilities handling radioactive materials. Included are references on glove boxes, fire hazards and control, explosion hazards and control, laboratory design, ventilation systems, and filter systems. Author

N64-30992* Ohio State U., Columbus
LASER MATERIALS: A TUTORIAL REVIEW WITH BIBLIOGRAPHY
James E. Bradley Washington, NASA, Oct. 1964 295 p refs
(Grant NsG-74-60)
(NASA-CR-75) OTS: \$4.00

This paper has five tutorial review sections. Crystallography, crystal chemistry, crystal growth, and glass are important topics of discussion in the first four sections. The fifth section deals with the nature of laser ions, and in particular, rare earth and actinide elements. The bibliography is divided into two parts. Part A contains a selected group of reference books, review articles, and bibliographies on subjects related to laser materials. Part B is a partially annotated bibliography of specific references on a group of subjects related to lasers and laser materials. The contents, sources of references, and degree of coverage of each section are given. D.E.W.

N64-31015 Iowa State U. of Science and Tech., Ames
Ames Lab.
BIBLIOGRAPHY OF REVERSED-PHASE PARTITION CHROMATOGRAPHY
C. E. Hedrick and James S. Fritz Jul. 1964 20 p refs
(Contract W-7405-ENG-82)
(IS-950)

N64-31117 Lockheed Missiles and Space Co., Sunnyvale, Calif.
THE COMBINED EFFECTS OF SPACE ENVIRONMENTAL PARAMETERS UPON SATELLITE SYSTEMS AND COMPONENTS: AN ANNOTATED BIBLIOGRAPHY
Charles G. Gros, comp. Jan. 1964 285 p refs
(Contract AF 04(647)-67)
(Rept.-3-35-64-3; SB-64-4; AD-445142)

This bibliography cites material on space environmental parameters in their combined effects upon satellites, satellite systems, and components. Included among these parameters are ablation, acceleration, acoustics, atmospheric and ground conditions, cryogenics, electromagnetism, gravity (including weightlessness), heat, instrumentation, meteoroids and other interstellar matter, radiation, shock, vacuum, and vibration. Measurement and testing, both with respect to methodology and results, are also included. Since the effects of these environmental parameters on manned vehicles is considered together with their effects on the materials comprising satellites, information on human engineering, human factors, and materials is included as well. Author

N64-31466 Oak Ridge National Lab., Tenn. Research Materials Information Center

GROUPS IV, V, AND VI TRANSITION METALS. SELECTED REFERENCES ON PREPARATION, STRUCTURE, PHYSICAL PROPERTIES, METALLOGRAPHY, AND TRANSPORT PROPERTIES

Sep. 1964 27 p refs Sponsored by AEC
(ORNL-RMIC-3)

N64-31700* General Electric Co., Schenectady, N.Y.
FLUID AMPLIFIER STATE OF THE ART. VOLUME II: BIBLIOGRAPHY
Washington, NASA, Oct. 1964 124 p refs
(Contract NAS8-5408)
(NASA-CR-102) OTS: \$2.75

The search was limited to no-moving-part fluid devices and representative sources for basic technology. The period from 1935 to the present was covered. Particular effort was made to find references in the Russian literature in view of reports that the fluid devices are being applied in their missiles. The bibliography includes 317 references, of which 210 have been abstracted. No appreciable effort was identified in the period from 1935 until early 1960; most of the references have appeared during the last two-and-a-half years. There was almost no specific information on Russian progress in this field. Author

N64-31936 Aerospace Medical Div. Arctic Aeromedical Lab., Fort Wainwright, Alaska
NATURAL MAMMALIAN HIBERNATION A Bibliography
William V. Mayer Jun. 1964 300 p
(Contract AF 41(657)-230)
(AAL-TDR-63-34; AD-605252)

N64-32017 Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands)
SUPPLEMENT TO THE BIBLIOGRAPHY ON BLAST, SHOCK WAVES AND ALLIED TOPICS, FEATURING NUCLEAR EXPLOSIONS
G. J. J. v. d. Knapp, Jr. Jul. 1964 101 p refs Suppl. to TDCK-30050; TDCK-30051
(TDCK-30050-S1; TDCK-30050; TDCK-30051)

N64-32018* Technisch Documentatie en Informatie Centrum Voor de Krijgsmacht, The Hague (Netherlands)
PROTECTION AGAINST THE BIOLOGICAL EFFECTS OF THERMAL RADIATION—A BIBLIOGRAPHY
J. W. Thiessen and J. Van Woerden Feb. 1963 105 p refs
(TDCK-33500)

This bibliography contains summaries of reports and articles on the physical characteristics of thermal radiation and radiation sources, on exposure, environmental, and skin factors influencing cutaneous burn production, and on the protective effects of fabrics, paints, creams, and other interposed materials. Material on mathematical analyses (prediction techniques) and retinal lesions is included. Whenever possible an annotation accompanies each bibliographical entry. The bibliography consists of 171 entries. Author

N64-32034 Army Electronics Research and Development Activity, White Sands Missile Range, N. Mex.
NOCTILUCENT AND NACREOUS CLOUDS. CIRRIFORM CLOUDS. CONDENSATION TRAILS An Author Bibliography
Marjorie Mc Lardie Hoidale Aug. 1964 139 p refs
(ERDA-181; AC-446672)

N64-32057 National Academy of Sciences-National Research Council, Washington, D.C. Prevention of Deterioration Center
EFFECTS OF VAN ALLEN RADIATION BELTS ON ELECTRONIC MATERIALS An Introductory Bibliography
 Richard W. H. Lee, comp. 18 Jan. 1963 5 p refs
 (PDC-Search-63-003; PDL-46195; AD-601298) OTS: \$1.00

N64-32101 Air Force Systems Command, Kirtland AFB, N. Mex. Air Force Weapons Lab.
BIBLIOGRAPHY OF EXTRA TERRESTRIAL RESEARCH
 Robert W. Henny Jul. 1964 217 p refs 2d ed.
 (AFWL-TDR-64-29; AD-604105)

N64-32113 Air Force Cambridge Research Labs., Bedford, Mass.
BIBLIOGRAPHY OF ROCK DEFORMATION Special Reports No. 5
 R. E. Riecker Sep. 1964 56 p refs
 (AFCR-64-713; AD-606550)

A bibliography of 490 rock-deformation research articles published in scientific journals is presented with both subject and author entries. The cross-referenced subject listings fall into the following major categories: apparatus, brittle behavior, calcite, calibration, compressibility, conductivity, creep, density, dolomite, elastic behavior and elastic constants, fabric, friction, general, marble, metals, olivine, phase studies, plastic behavior, quartz, resistance, safety, sedimentary rocks, seismic velocities, shear, shock, strain rate, surveys, viscosity, X-ray.

Author

N64-32214 Monsanto Research Corp., Everett, Mass. Boston Lab.
SYNTHESIS OF PANCHROMATIC PHOTSENSITIZING DYES. PART II. LITERATURE SURVEY Technical Documentary Report, 1 Apr. 1963-31 Mar. 1964
 John S. Driscoll and Richard H. Nealey Wright-Patterson AFB, Ohio, AF Avionics Lab., May 1964 35 p refs
 (Contract AF 33(657)-11430)
 (AL-TDR-64-130, Pt. II, Vol. I; AD-601369)

A critical, abstracted literature survey has been conducted in several areas pertaining to dye sensitized photoreactions with photographic applications. Silver halide sensitizers are covered during the 1961-1962 period. A 1949-1962 thionine dye survey is included.

Author

N64-32324 System Development Corp., Santa Monica, Calif.
COMPUTER APPLICATIONS IN MEDICINE AND THE BIOLOGICAL SCIENCES Bibliography II
 Sally L. Empey 28 Oct. 1963 36 p refs
 (SP-1025/001/00)

N64-32353 Library of Congress, Washington, D.C. Aerospace Information Div.
PHENOMENA IN THE UPPER ATMOSPHERE. COMPILATION OF ABSTRACTS FROM SOVIET LITERATURE
 24 Mar. 1964 22 p refs
 (AID-P-64-15; AD-601890) OTS: \$1.00 fs; \$0.50 mf

The following topics are discussed in this paper: "Ionospheric Electron Concentration"; "Solar Radiation and the Ionosphere"; "Van Allen Belts and Cosmic Rays"; "Telluric Currents"; "Nuclear Bursts in the Atmosphere"; and "Satellite and Missile Data."

G. G.

N64-32354 Library of Congress, Washington, D.C. Aerospace Technology Div.
PHENOMENA IN THE UPPER ATMOSPHERE Compilation of Abstracts
 2 Sep. 1964 32 p refs
 (ATD-P-64-51; AD-605327) OTS: \$2.00 fs; \$0.50 mf

This review of Soviet developments in selected problems in astrophysics and geophysics covers ionospheric electron concentrations, solar radiation and the ionosphere, Van Allen belts and cosmic rays, telluric currents, atmospheric electricity, nuclear bursts in the atmosphere, satellite and missile data, arctic and antarctic communications, and meteorology of the upper atmosphere. It is based on materials received at the Aerospace Technology Division in May 1964.

D. E. W.

N64-32355 Library of Congress, Washington, D.C. Aerospace Technology Div.
SOVIET LITERATURE ON LIFE SUPPORT SYSTEMS. PART A: BIOSCIENCES Compilation of Abstracts
 1 Sep. 1964 29 p refs
 (ATD-P-64-52; AD-605550) OTS: \$2.00 fs; \$0.50 mf

Items selected from Soviet open literature and dealing with the following topics are discussed: (1) Space Medicine and Biology—"Decrease of the Effectiveness of the Protective Action of Cysteamine in Repeated Irradiation"; "Study of the Antiradiation Effect of Phenoxazine Derivatives"; "Effect of Prophylactic on Animals Subjected to External or Internal Irradiation"; "New Trends in the Study of Regeneration"; "Action Mechanism of Prophylactic and Therapeutic Complexes in Rats with Acute Radiation Sickness"; "Stimulating Effect of Serotonin on Hematopoiesis in Irradiated Rats"; and "Progress in Soviet Reanimatology"; and (2) Space Physiology—"The Effect of Decompression in Acute and Chronic Experiments"; "Effect of Hypoxia on the Coronary Circulation of Dogs"; "Effect of Proton and Gamma Radiation on the Functional State of the Vestibular Analyzer"; "On Mount Aragats"; and "Bioelectric Activity of Skeletal Muscles under Alternating Conditions of Overloads and Weightlessness."

P. V. E.

N64-32356 Library of Congress, Washington, D.C. Aerospace Technology Div.
SOVIET LITERATURE ON LIFE SUPPORT SYSTEMS. PART A: BIOSCIENCES Compilation of Abstracts
 2 Sep. 1964 29 p refs
 (ATD-P-64-53; AD-605415) OTS: \$1.00 fs; \$0.50 mf

The abstracts are of papers selected from Soviet literature. Articles dealing with the following subjects are included: (1) Space Medicine and Biology—"Mechanism of the Antiradiation Effect of Cysteamine"; "Autoinfection (intestinal) in Radiation Sickness and Its Prevention in White Rats of the Wistar Strain"; "Radioprotective Effect of Diethylstilbestrol"; "Dynamic Biotelemetry"; and (2) "Space Physiology—Effect of Chemical Radioprotectors on Free Oxygen Concentration in the Brain and Bone Marrow of Rabbits"; "Content of the Catechol Hormones, Adrenaline and Noradrenaline, in Peripheral Blood during Moderate Hypothermia"; "Weightlessness and Artificial Gravity"; "Third Volga-Area Conference of Physiologists, Biochemists, and Pharmacologists"; and "Studies of Chemical Protection against Ionizing Radiation. I. Studies of the Toxicity of Sodium Cysteine Thiosulfonate to C₅₇ Strain Black Mice."

P. V. E.

N64-32407* National Aeronautics and Space Administration, Washington, D.C.
AEROSPACE MEDICINE AND BIOLOGY A Continuing Bibliography, Jun.-Jul. 1964

Sep. 1964 140 p refs
(NASA-SP-7011(02)) OTS: \$1.00

An annotated bibliography is given of unclassified reports and journal articles that were introduced into the NASA information system during June and July. This bibliography concentrates on the biological, physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the earth's atmosphere or in interplanetary space. These references were announced earlier in separate publications by NASA, the Library of Congress, and the American Institute of Aeronautics and Astronautics. The references are indexed by subject, corporate source, and personal author. D.E.W.

N64-32409 National Academy of Sciences-National Research Council, Washington, D.C. Prevention of Deterioration Center

PERFORMANCE ABOVE 1000°F OF SUPERALLOYS AND PROTECTIVE COATINGS

R. G. Lyle and R. C. Peden, comp. Dec. 1963 56 p refs
(PDC-Search-63-050; PDL-50140; AD-601295) OTS: \$3.00

This annotated bibliography gives references to documents in the Prevention of Deterioration Center Library on superalloys and protective coatings for hot-section application. Subjects emphasized include resistance to oxidation, erosion, corrosion, carburization, sulfurization, and spalling, and mechanical property data that include fatigue. Emphasis is placed on nickel- and cobalt-base alloys, although references are included on selected iron- and chromium-base alloys. D.E.W.

N64-32521 Army Cold Regions Research and Engineering Lab., Hanover, N.H.

BIBLIOGRAPHY ON SNOW, ICE AND PERMAFROST WITH ABSTRACTS, VOLUME XVIII

Frank M. Marson et al. Jun. 1964 278 p refs
(CRREL-12, Vol. XVIII; AD-447121)

The bibliography provides current and comprehensive coverage of scientific information about living and operating in the polar regions and cold areas where snow, ice, and permafrost exist. Abstracts are arranged in general subject groups and by number; authors are listed alphabetically; a few titles are listed in alphabetical order; and an extensive subject index with many cross-references is included. D.E.W.

N64-32590 Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands)

DEFENSE WEAPONS TECHNIQUES, VIII (1963) [BEWAPENINGS-TECHNIEK VIII (1963)] Title Index

1963 92 p
(TDCK-15963)

N64-32591 Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands)

OPERATIONS RESEARCH IV: TITLE-INDEX

Dec. 1963 52 p refs
(TDCK-36938)

This index contains titles of publications announced in the issues O.R. 42 up to and including O.R. 53 of the abstract bulletin "Operations Research," published in 1963. Author

N64-32606 Cornell Aeronautical Lab., Inc., Buffalo, N.Y.
A BIBLIOGRAPHY OF RESEARCH ON HUMAN TRACKING PERFORMANCE

Richard A. Monty, Joyce E. Obermaier, and William J. Ruby
Sep. 1963 42 p refs
(CAL-131; AD-420186)

N64-32741* National Aeronautics and Space Administration, Washington, D.C.

AEROSPACE MEDICINE AND BIOLOGY A Continuing Bibliography, 23 Aug.-8 Sep. 1964

Oct. 1964 154 p refs
(NASA-SP-7011(03)) OTS: \$1.00

The subjects covered are the biological, physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the atmosphere or in space. Also included are effects on biological organisms of lower order, and such related topics as sanitary problems, pharmacology, toxicology, safety and survival, life-support systems, exobiology, and personnel factors. Three organizations contribute to the publication—NASA, the American Institute of Aeronautics and Astronautics, and the Library of Congress. R.L.K.

N64-32813 George Washington U., Washington, D.C. Human Resources Research Office

AN ANNOTATED BIBLIOGRAPHY ON PROFICIENCY MEASUREMENT FOR TRAINING QUALITY CONTROL Research Memorandum

Robert G. Smith, Jr. Jun. 1964 29 p
(Contract DA-44-188-ARO-2)
(AD-448362)

This annotated bibliography on quality control in training includes references from a variety of sources, listed alphabetically by author within the following categories: general, test manuals, test methods, quality-control systems, and test development and description. M.P.G.

N64-32966 Lockheed Missiles and Space Co., Sunnyvale, Calif.

RADAR SIMULATION: AN ANNOTATED BIBLIOGRAPHY
George R. Evans, comp. Jun. 1964 77 p refs /Its Rept.-2-60-64-28

(Contract NOW-63-0050-c)
(SB-64-12; AD-449498)

The subject of the search is limited generally to radar simulation by computers—either analog or digital techniques. Excluded for the most part are those references dealing with simulation by electronic modeling. The search covers the period 1956-June 1964 for open literature and 1953-June 1964 for report literature. Author

N64-32972 Lockheed Missiles and Space Co., Sunnyvale, Calif.

ELECTRONIC COUNTERMEASURES AND COUNTER-COUNTERMEASURES: AN ANNOTATED BIBLIOGRAPHY Supplement II, Jun. 1963-Jun. 1964

Peter R. Stromer, comp. Jul. 1964 107 p refs /Its Rept.-2-60-64-32

(Contract NOW-63-0050-c)
(SB-64-13; AD-448090)

Emphasis is on active ECM devices and techniques, especially as related to reentry vehicle penetration aids. Entries are arranged alphabetically by corporate source, with both a detailed subject index and a personal author index included. Author

N64-32991* Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena

PUBLICATIONS OF THE JET PROPULSION LABORATORY, JULY 1963-JUNE 1964

Joe Dyer, Jr. 31 Aug. 1964 62 p refs
(Contract NAS7-100)

(NASA-CR-58761; JPL-Bibl.-39-5) OTS: \$3.00 fs; \$0.50 mf

This bibliography is a compilation of official reports. It includes abstracts of technical reports and memoranda, lists of summary publications, and abstracts of literature searches and translations.
R.L.K.

N64-33137 Picatinny Arsenal, Dover, N.J. Plastics Technical Evaluation Center
SUBJECT INDEX, BIBLIOGRAPHY, AND CODE DESCRIPTION OF TECHNICAL CONFERENCE PAPERS ON PLASTICS: 28 February 1963-1 March 1964
Arnold E. Molzon Jul. 1964 118 p refs
(PLASTEC-17) OTS: \$2.50

The papers presented at technical conferences on plastic materials and related technology, within a one-year period ending 28 February 1964, have been listed, indexed by subject, and compiled by material, type of technical data, and military application. Over 600 papers from 19 conferences have been covered. Included are a bibliography and an author index. An analysis of technical conference trends is also presented.
Author

N64-33138 Atomic Energy Commission, Washington, D.C. Div. of Biology and Medicine
REPORTS ON ATOMIC RADIATION SUBMITTED TO THE UNITED NATIONS SCIENTIFIC COMMITTEE ON THE EFFECTS OF ATOMIC RADIATION, SUPPLEMENT 2 An Atomic Radiation Bibliography, 15 May 1962-1 Jun. 1964
Alfred W. Klement, Jr., comp. Jun. 1964 23 p
(TID-3909 (Suppl. 2)) OTS: \$0.50

N64-33194* Aerojet General Corp., Azusa, Calif.
BIBLIOGRAPHY ON LIQUID METALS TECHNOLOGY OF Hg, K, Na, AND NaK
P. L. Studt, I. M. Rehn, and J. T. Jouthas Sep. 1963 471 p refs /ts Rept.-2550
(Contract NAS5-417)
(NASA-CR-59028) OTS: \$7.71 fs; \$2.25 mf

This annotated bibliography includes items on corrosion fundamentals; containment materials; liquid metals; effect of design and fabrication parameters on corrosion by liquid metals; effect of loop operation on performance; loop components; and techniques of corrosion testing.
A.W.

N64-33240 Naval Ordnance Lab., Corona, Calif.
MAGNETORESISTANCE IN METALS, SEMICONDUCTORS, AND ALLOYS: A BIBLIOGRAPHY ON THEORETICAL AND EXPERIMENTAL ASPECTS Comprehensive Bibliography, 1930-1963
L. E. Leonard 15 Jul 1964 97 p refs
(NAVWEPS-8191; AD-603359)

N64-33245 Flight Safety Foundation, Inc., New York, N.Y. Aviation Safety Engineering and Research
SYNTHESIS OF AIRCRAFT (CRASH) FIRE, RESCUE, AND EVACUATION TECHNOLOGY
H. G. C. Henneberger, H. F. Roegner, and L. Cambeis Washington, FAA, Jul. 1964 251 p refs
(Contract FA-WA-4458, Proj. SAFRET)
(ADS-16)

A description of an accomplished program is given wherein technical literature on postcrash aircraft fire, rescue, and evacuation was gathered and integrated into a system whereby persons conducting research on the subject might identify needed

documents containing specific areas of information rapidly. The basic implements of the system are a code book, an IBM tab run, and a bibliography with an abstract for each document listed. The user desiring information finds a coded number in the code book corresponding to his specific area of interest, identifies all applicable documents in the tab run, and then reads abstracts of the documents in the bibliography to determine which documents to acquire to further his research. Major categories in which the collected material is indexed are: hazard exposure, design, test and analysis, and human factors. Author

N64-33303 Colorado U., Boulder
LITERATURE SURVEY OF ORTHOHYDROGEN AND PARAHYDROGEN RESEARCH
P. L. Barrick and L. F. Brown Wright-Patterson AFB, Ohio, AF Aero Propulsion Lab., Aug. 1964 66 p refs
(Contract AF 33(616)-7654)
(APL-TDR-64-81; AD-605285)

A survey of the technical literature pertaining to orthohydrogen and parahydrogen is presented. The survey covers the literature from the prediction of the existence of the two forms of hydrogen in 1929 through October 1963. The abstracts are presented in five categories: ortho to parahydrogen conversion, para to orthohydrogen conversion, theories and mechanisms relating to ortho-para and para-orthohydrogen conversion, properties of ortho and parahydrogen, and reviews and miscellaneous.
Author

N64-33318 Polytechnic Inst. of Brooklyn, N.Y.
AN ANNOTATED BIBLIOGRAPHY ON ABLATION AND RELATED TOPICS
Martin H. Israel and S. V. Nardo May 1964 158 p refs
(Contract Nonr-839(23))
(PIBAL-686; AD-603139)

This 700-entry bibliography was compiled with the objective of being as complete as possible, containing most, if not all, of the major works, as well as many of the less important works dealing with high-temperature environment, reentry dynamics and thermodynamics, cooling methods, ablation cooling, and materials for high-temperature applications. The classified references, however, are only a sample of the large number of works dealing with specific applications of ablative shielding and are meant to serve as a foundation for a further literature search.
R.L.K.

N64-33718 Mound Lab., Miamisburg, Ohio
HELIUM-3: AN ANNOTATED BIBLIOGRAPHY AEC Research and Development Report
C. F. Eck, K. J. Kaminski, W. A. Wakat, comp., and W. J. Haubach, ed. [1962] 454 p refs
(Contract AT(33-1)-GEN-53)
(MLM-1190) OTS: \$5.50

This bibliography contains references with abstracts of articles published before January 1, 1963, which mention helium-3. It is arranged in chronological order by the year of publication of the articles. Each article is numbered serially, thus allowing a visualization of the amount of yearly progress. The bibliography contains both an author and a subject index.
D.E.W.

N64-33769* Martin Co., Denver, Colo. Aerospace Div.
INVESTIGATIONS RELATIVE TO WIND-INDUCED OSCILLATIONS OF THE SATURN BOOSTERS IN THE VERTICAL LAUNCH POSITION (1 JUNE 1963 THRU 30 JUNE 1964). PART IV: BIBLIOGRAPHY
Sep. 1964 13 p refs
(Contract NAS8-5322)
(NASA-CR-59329, CR-64-40(Pt. 4)) OTS: \$1.00 fs, \$0.50 mf

N64-33847 Defense Documentation Center, Alexandria, Va.
ECHO COMMUNICATION SATELLITE Bibliography, Dec. 1959–Nov. 1963
 Esther E. Thompson, comp. Nov. 1963 24 p refs
 (AD-422849)

1965

N65-10046# Library of Congress, Washington, D.C. Aerospace Technology Div.
SOVIET METEOROLOGY AND CLIMATOLOGY. COMPILATION OF ABSTRACTS, 1962–1963 Report No. 2
 5 Oct. 1964 101 p refs
 (ATD-P-64-55)

The abstracts are compiled by author within four subject groups: (1) climatology of high levels; (2) general circulation of the atmosphere; (3) weather forecasting; and (4) regional studies and local phenomena. The abstracts are taken mostly from *Referativnyy Zhurnal. Geofizika*, and cover Soviet open literature published in 1962 and 1963. M.P.G.

N65-10228* National Aeronautics and Space Administration, Washington, D.C.
AEROSPACE MEDICINE AND BIOLOGY. A CONTINUING BIBLIOGRAPHY
 Nov. 1964 130 p refs
 (NASA-SP-7011(04)) OTS Price: \$1.00

The subjects covered are the biological, physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the atmosphere or space. Also included are effects on biological organisms of lower order, and such related topics as sanitary problems, pharmacology, toxicology, safety and survival, life-support systems, exobiology, and personnel factors. Three organizations contribute to the publication—NASA, the American Institute of Aeronautics and Astronautics, and the Library of Congress. R.L.K.

N65-10363* Biosystems, Inc., Cambridge, Mass.
BIOLOGICAL CONTROL SYSTEMS—A CRITICAL REVIEW AND EVALUATION. VESTIBULAR CONTROL SYSTEM Second Quarterly Progress Report, 28 Aug.–30 Nov. 1963
 [1963] 78 p refs
 (Contract NAS2-1372)
 (NASA-CR-59441; QPR-2) OTS Prices: HC \$3.00/MF \$0.75

The vestibular system is presented as a biological control system, in which contributions from the fields of psychology, physiology, anatomy, aviation medicine, and engineering are integrated. The discussion is divided into the following areas: the vestibular control system in general, anatomy and physiology of the vestibular system, behavioral experimental results related to the vestibular control system, descriptions of the control system and experiments relating to the vestibular system, and vestibular control system models. Also presented is a bibliography covering most of the literature relevant to the nonclinical aspects of the vestibular system. P.V.E.

N65-10388# Defense Documentation Center, Alexandria, Va.
O-RINGS A Report Bibliography
 Thomas C. Goodwin, comp. Jan. 1964 28 p refs
 (AD-422417)

Information on seals for propulsion, power transmission, spacecraft, fuel, and hydraulic systems is presented. Design specifications for extreme temperatures, pressures, and space environmental conditions are given. Subjects presented in this bibliography include references to design, configuration, and properties of O-ring seals as applied to guided missiles, submarines, guns, and electrical equipment. The 68 references cited cover a period from March 1953 to February 1963.

Author

N65-10410# Army Dept., Washington, D.C.
MISSILES AND VENTURES INTO SPACE Progress Report 1962–1963

31 Oct. 1963 125 p /ts Pamphlet 70-5-11 GPO: \$0.70

Presented are extracts and abstracts from articles and papers dealing with the following subjects: (1) trends in the national space effort; (2) development and capabilities of the various missiles-space projects and programs; (3) missile and space efforts of other free nations; (4) the U.S.S.R. space program; (5) the trends and developments in missiles, rockets, and space vehicles; (6) new areas of space exploration; (7) space as a battlefield; (8) disarmament aspects and arms control; (9) documents and congressional hearings reports; and (10) reference works and source materials. Also included are brief descriptions of Soviet missiles, space boosters, and space vehicles. P.V.E.

N65-10573# Lockheed Missiles and Space Co., Sunnyvale, Calif.
VALUE ENGINEERING: AN ANNOTATED BIBLIOGRAPHY, 1961–JUNE 1964

Peter R. Stromer, comp. Aug. 1964 32 p
 (LMSC-4-11-64-6; SB-64-16)

Value engineering has been defined as a procedure making use of the best available techniques common to cost reduction, reliability, quality control, industrial engineering, and operations research. The value engineer or value analyst seeks out all items affecting costs that can be eliminated or modified while maintaining or improving functional performance of particular products or systems. Period of literature coverage is 1961 through June 1964. A subject index is included. Author

N65-10974# Lockheed Missiles and Space Co., Sunnyvale, Calif.
PENETRATION AIDS: AN ANNOTATED BIBLIOGRAPHY, JUNE 1963–JUNE 1964
 Peter R. Stromer, comp. Oct. 1964 174 p refs
 (B-07-64-3; SB-64-17)

Penetration aids are defined as those devices and techniques that confuse, deceive, and overwhelm hostile detection and tracking radar, thus enabling ballistic missiles to penetrate to their assigned targets. Included are chaff, countermeasures, decoys, maneuvering reentry vehicles, and nuclear precursors, used singly or in various combinations. Author

N65-11019* Space Technology Labs., Inc., Redondo Beach, Calif.
A STUDY OF MANUAL CONTROL METHODOLOGY WITH ANNOTATED BIBLIOGRAPHY

L. G. Summers and K. Ziedman Washington, NASA, Nov. 1964 205 p refs
(Contract NASw-717)
(NASA-CR-125) OTS Prices: HC \$3.50/MF \$1.25

Two general classifications of approaches toward describing the human being as a controller are reviewed. The first is the study of perceptual motor behavior, as performed by the general or engineering psychologist. The second is the application of mathematical models, based on control theory to the description of the human operator. Differences and similarities in the two approaches are discussed, and the most useful aspects of each are pointed out. Areas for future study are suggested.
R.L.K.

N65-11057* # National Aeronautics and Space Administration, Washington, D.C.
AEROSPACE MEDICINE AND BIOLOGY A Continuing Bibliography Apr.-Jun. 1964
Aug. 1964 186 p
(NASA-SP-7011(01)) OTS Prices: HC \$1.00/MF \$1.25

An annotated bibliography is given of unclassified reports and journal articles that were introduced into the NASA information system during this period. The subject matter covers biological, physiological, psychological, and environmental effects to which man is subjected during the following simulated or actual flight in the atmosphere or in space. These areas were announced previously in separate publications by the Library of Congress, the American Institute of Aeronautics and Astronautics, and NASA. The references are indexed by subject, corporate source, and personal author.
R.L.K.

N65-11193# Naval Civil Engineering Lab., Port Hueneme, Calif.
COATING MATERIAL FOR PREVENTION OF ICE AND SNOW ACCUMULATIONS—A LITERATURE SURVEY
Howard A. Porte and Thomas E. Nappier 12 Nov. 1963 8 p refs
(TN-541; Y-R007-08-410; AD-423715)

The known principles and materials that have applications in preventing the formation of ice and snow on outside surfaces have been reviewed. Field experience has shown that there are no coatings presently available that are effective over extended periods of time. On the basis of the ice adhesion strength of the various coatings, it appears that it would be very difficult, if not impossible, to obtain a material with the necessary physical properties to eliminate the accumulation of ice. Author

N65-11921# International Union of Pure and Applied Chemistry, Basle (Switzerland) Commission on High Temperatures and Refractories
BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF MATERIALS IN THE CONDENSED STATE, VOLUME 1964, NUMBER 3, JULY, AUGUST, SEPTEMBER 1964
J. J. Diamond (NBS, Washington, D.C.), ed. 1964 68 p refs

CONTENTS:

1. DEVICES FOR ACHIEVING TEMPERATURES ABOVE 1500°C p 1 refs
2. DEVICES FOR MEASURING AND CONTROLLING TEMPERATURES ABOVE 1500°C p 1-2 refs
3. DEVICES FOR PHYSICAL MEASUREMENTS AT TEMPERATURES ABOVE 1000°C p 2-4 refs

4. PROPERTIES, AT TEMPERATURES BELOW 1000°C, OF MATERIALS WHICH MELT ABOVE 1500°C
 - A. METALLIC MATERIALS p 4-13 refs
 - B. NON-METALLIC MATERIALS p 13-32 refs
 - C. MIXED MATERIALS p 32 refs
5. PROPERTIES, AT TEMPERATURES ABOVE 1000°C, OF MATERIALS WHICH MELT ABOVE 1500°C
 - A. METALLIC MATERIALS p 32-34 refs
 - B. NON-METALLIC MATERIALS p 34-42 refs
 - C. MIXED MATERIALS p 43 refs
6. PROPERTIES, AT TEMPERATURES ABOVE 1000°C, OF MATERIALS WHICH MELT BELOW 1500°C
 - A. METALLIC MATERIALS p 43-45 refs
 - B. NON-METALLIC MATERIALS p 45-46 refs
7. PHASE EQUILIBRIA p 47-58 refs
8. REACTIONS AT TEMPERATURES ABOVE 1000°C p 58-65 refs

N65-11995# Battelle Memorial Inst., Columbus, Ohio
LATERAL VIBRATIONS IN MISSILES: A BIBLIOGRAPHY
L. E. Hurlbert, W. L. Belton, and T. J. Atterbury Huntsville, Ala., Army Missile Command, Jul. 1964 51 p refs
(Contract DA-01-021-AMC-203(Z))
(RSIC-266; AD-451321)

This bibliography consists of 377 entries and contains the results of a title survey conducted to obtain literature related to the problem of damping the transverse vibration of large missiles. The titles are grouped into three categories covering free vibrations, damped vibrations, and material damping properties. Only papers published in English after 1940 are included.
Author

N65-12428# Mound Lab., Miamisburg, Ohio.
SHOCK TUBES: A BIBLIOGRAPHY (SUPPLEMENT I)
Arnold M. Melnick 17 Dec. 1964 12 p refs
(Contract AT(33-1)-GEN-53)
(MLM-1189(Supp))

N65-12453# National Bureau of Standards, Washington, D.C.
RESEARCH ON CRYSTAL GROWTH AND CHARACTERIZATION AT THE NATIONAL BUREAU OF STANDARDS DURING THE PERIOD JANUARY TO JUNE 1963
H. Steffen Peiser, ed. 23 Sep. 1963 48 p refs
(NBS-TN-197) GPO: \$0.30

The National Bureau of Standards with partial support from the Advanced Research Projects Agency is continuing diverse research projects on the growth and characterization of crystals. This note summarizes the individual NBS activities in this and closely related fields during January to July 1963. Lists of NBS publications appertaining to that period and of participating NBS scientists are appended.
Author

N65-12837* # Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena.
ORGANIC SEMICONDUCTORS. II: PROPERTIES, SYNTHESIS, AND APPLICATION
Dorothy I. Sweitzer, comp. 1964 321 p refs
(Contract NAS7-100)
(NASA-CR-59799; JPL/AI/LS-482) OTS Prices: HC \$7.00/MF \$1.75

Presented is an annotated bibliography on organic semiconductors. The bibliography is divided into four main subject areas: conductivity and semiconductivity, photoconductivity, excited states, and dielectric effects. Entries under each of the

four main headings are grouped as follows: general references, theory, experiment, synthesis, and application. P.V.E.

N65-12890# Ohio State U., Columbus. Engineering Experiment Station
EQUATIONS FOR FOUR-BAR LINKAGE FUNCTION GENERATORS

Charles W. McLarnan [1963] 96 p refs *Its Bull. No. 197*
 Available from Ohio State U.: \$3.00

This report presents a collection of equations for the synthesis of four-bar linkage function generators in cases where either three, four, or five conditions are placed on the input and output rotations, or their derivatives. A total of fifteen possible cases are presented. G.G.

N65-13066# British Hydromechanics Research Assn., Harlow (Gt. Brit.)
REFERENCES ON GUIDE-VANE PIPE AND DUCT BENDS
 May 1964 11 p refs
 (BIB-16)

A bibliography of references on guide-vane pipe and duct bends is presented with abstracts for some of the papers. The references are arranged in chronological order, from 1927 to 1960, and two bibliographies published on the same subject in 1962 are also listed. D.E.W.

N65-13117# Gt. Brit. Dept. of Scientific and Industrial Research, Warren Spring Lab.
HUMAN SCIENCES IN INDUSTRY (ANNOTATED BIBLIOGRAPHY). PART I: ERGONOMICS
 Oct. 1964 137 p refs

This is a bibliography of papers pertaining to biotechnology in industry. Among the subjects presented are human factors, psychological concepts, the effects of alcohol, environmental effects, and behavioral observations. G.G.

N65-13546*# General Technical Services, Inc., Cleveland, Ohio.
ANALYSIS OF THE DYNAMIC SYSTEMS RESPONSE OF SOME INTERNAL HUMAN SYSTEMS
 A. S. Iberall and S. Z. Cardon Washington, NASA, Jan. 1965 115 p refs
 (Contract NASw-1066)
 (NASA-CR-141) OTS: HC \$4.00/MF \$1.00

This document summarizes the first round of theoretical and experimental work undertaken on specific internal biologic systems. It discusses the thermoregulation system, the cardiovascular system, the hormonal system, and the behavioral system. Author

N65-13829*# National Aeronautics and Space Administration, Washington, D.C.
AEROSPACE MEDICINE AND BIOLOGY—A CONTINUING BIBLIOGRAPHY
 Dec. 1964 151 p refs
 (NASA-SP-7011(05)) OTS: HC \$1.00/MF \$1.00

Abstracts are included that refer to the biological, physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the earth's atmosphere or in interplanetary space. References describing similar effects on lower organisms are also covered. Attention is given to such related topics as sanitary problems, pharmacology, toxicology, safety and survival, life support systems, exobiology, and personnel factors. R.L.K.

N65-13955# Gt. Brit. Dept. of Scientific and Industrial Research, Warren Spring Lab.
HUMAN SCIENCES IN INDUSTRY. PART I: ERGONOMICS Annotated Bibliography
 Sep. 1964 133 p refs

Included are abstracts of studies reported on in a variety of domestic and foreign professional journals, in conference proceedings, and in other documents. Categories cover ergonomics; systems of men and machines; visual inputs and processes; auditory inputs and processes; other sensory inputs and processes; input channels—choice and interaction; body measurements, basic physiological capacities, basic and complex motor performance; design of controls and integration with displays; layout of panels and consoles; design of work space, equipment, and furniture; clothing and personal equipment; special environmental factors affecting performance; individual factors, work conditions, and task characteristics that affect behavioral efficiency; training aids and devices and their use; personnel psychology and social psychology relevant to ergonomics. R.L.K.

N65-13964*# National Aeronautics and Space Administration, Washington, D.C.
BIBLIOGRAPHY USSR IGY WORLD DATA CENTER B1
 Jan. 1965 32 p refs Transl. into ENGLISH of "Bibliograficheskii Ukazatel" Inst. Aeroklimatologii (USSR), no. 4, pt. 1 1960
 (NASA-TT-F-92) OTS: HC \$2.00/MF \$0.50

N65-14044# Air Force Cambridge Research Labs., Bedford, Mass.
THE NATURAL ENVIRONMENT FOR THE MANNED ORBITING LABORATORY SYSTEM PROGRAM (MOL) Special Reports No. 7
 25 Oct. 1964 49 p refs
 (AFCRL-64-845; AD-607725)

The natural environment of the Manned Orbiting Laboratory (MOL) in a near-earth orbit is described. Parametric information based primarily on material from the forthcoming Handbook of Geophysics and Space Environments is provided on the upper atmosphere, the geomagnetic field, corpuscular radiation, meteoroids, and the sun. A selected bibliography on these subjects is provided as a guide to sources of more detailed information. Author

N65-14170# Library of Congress, Washington, D.C. Aerospace Technology Div.
PHENOMENA IN THE UPPER ATMOSPHERE. COMPILATION OF ABSTRACTS
 9 Dec. 1964 26 p refs *Its Rept. 49*
 (ATD-P-64-65)

Soviet studies on the following topics are abstracted: *Solar Radiation and the Ionosphere; Van Allen Belts and Cosmic Rays; and Satellite and Missile Data.* G.G.

N65-14220# Army Missile Command, Huntsville, Ala. Redstone Scientific Information Center
AERODYNAMIC CHARACTERISTICS OF RING WINGS A Bibliography, 1950 - Jun. 1964
 John E. Terry Sep. 1964 38 p refs
 (RSIC-285; AD-452725)

The references pertain primarily to the following aerodynamic information on ring wings, also known as annular wings or circular wings: calculation of circumferential velocity and pressure distribution; studies on flow separation phenomena

at the wing leading and trailing edges; measurement of lift, drag and pitching moment; application of linearized theory to subsonic and supersonic gas flow; theory and measurement of vortex drag; measurement of three-dimensional turbulent boundary layer; determination of flutter using linearized equations; theory of stationary inviscid, incompressible flow around the wing; studies on drag reduction; studies on interference effects of an axisymmetric fuselage or a strut on wing pressure distributions; wind-tunnel tests of wings with and without a fuselage; and determination of optimum shape.

Author

N65-14430* # National Aeronautics and Space Administration, Marshall Space Flight Center, Huntsville, Ala.
BIBLIOGRAPHY ON FLUORINE AND FLUORINE OXYGEN OXIDIZERS FOR SPACE APPLICATIONS

J. H. Cabaniss. 16 Oct. 1964. 78 p. refs
 (NASA-TM-X-53149) OTS: HC \$3.00/MF \$0.75

This bibliography references approximately 350 reports on fluorine and fluorine-oxygen mixtures (FLOX). In the introduction, current Government contracts pertaining to FLOX and fluorine are listed. The bibliography includes separate sections dealing with material compatibility; handling, storage, disposal, and safety considerations; physical and chemical properties; propellant oxidizer studies; vehicle component design studies; and miscellaneous reports.

Author

N65-14533* # Multi-Tech., Inc., San Fernando, Calif.
LIQUID ROCKET COMBUSTION PROCESSES. TASK NO. 1: INITIATION OF LITERATURE SURVEY Progress Report

Frank B. Cramer. [1964]. 16 p. refs. Prepared for JPL. / Its Rept.-4244-1

(Contracts NAS7-100; JPL-950926)
 (NASA-CR-60041) OTS: HC \$1.00/MF \$0.50

The mechanics of a comprehensive literature search in those fields pertinent to liquid rocket engine combustion was initiated. The problems of information retrieval are being studied for the early incorporation of an efficient retrieval system into this effort.

Author

N65-14538* # Lockheed Missiles and Space Co., Huntsville, Ala. Huntsville Research and Engineering Center
A REPORT BIBLIOGRAPHY FOR THE TRISONIC AERODYNAMICS OF CONE-CYLINDER-FLARE-CYLINDER TYPE BODIES

Roger L. Hamner. 19 Feb. 1964. 30 p. refs
 (Contract NAS8-5327)

(NASA-CR-60057; LMSC/HREC-A033441; TM-54/01-45)
 OTS: HC \$2.00/MF \$0.50

N65-14665* # Iowa State U. of Science and Tech., Ames.
ELASTICITY AND INTERNAL FRICTION THROUGH THE KILOCYCLE RANGE: REVIEW AND ANNOTATED BIBLIOGRAPHY

M. O. Marlowe and D. R. Wilder. Jun. 1964. 133 p. refs
 (Contract W-7405-ENG-82)
 (IS-925) OTS: \$4.00

A review of techniques and fundamentals of Young's modulus and internal friction measurements is presented. The effect of porosity on elasticity is extensively reviewed as are factors contributing to internal friction. An annotated bibliography of 377 entries covering elasticity and internal friction measurements through the kilocycle frequency range is included and accompanied by a key word index.

Author

N65-14755* # Société Atome Industriel, Paris (France).
COMPARATIVE BIBLIOGRAPHY OF ACTIVATION ANALYSIS [BIBLIOGRAPHIE COMPAREE DE L'ANALYSE PAR ACTIVATION] Final Report

Brussels, EURATOM, Sep. 1964. 546 p. refs. in FRENCH; ENGLISH summary

(Contract EURATOM-017-62-12 IRAF)

(EUR-1886.f) Available from Belg. Am. Bank and Trust Co., N.Y., Account No. 22.186. 300 Belg. Fr.

The purpose of this work was to present a group of documents, relating to activation analysis, made up of 500 examples of applications chosen for their technical interest.

Author

N65-14963* # Witwatersrand U., Johannesburg (Union of South Africa).

MATERIAL CUTTING RESEARCH—A BIBLIOGRAPHY

Maryna Bosman, comp. Nov. 1964. 109 p. refs
 (Rept.-22)

N65-14971 # United Kingdom Atomic Energy Authority, Culham (Gt. Brit.) Culham Lab.

MAGNETIC MIRROR MACHINES—A BIBLIOGRAPHY

L. S. Francis, comp. Feb. 1964. 43 p. refs
 (CLM-Bib-5) HMSO: 5s

N65-15065* # California U., Livermore. Lawrence Radiation Lab.

RELIABILITY AND FAILURE OF ELECTRONIC EQUIPMENT, SYSTEMS, AND MATHEMATICAL MODELS: A BIBLIOGRAPHY

Carlotta M. Vidoni. Oct. 1964. 62 p. refs
 (Contract W-7405-ENG-48)
 (UCRL-12040)

N65-15174* # Battelle Memorial Inst., Columbus, Ohio.
THERMAL PROPERTIES OF HIGH-TEMPERATURE MATERIALS

W. D. Wood and H. W. Deem. Huntsville, Ala., Army Missile Command, 1 Jun. 1964. 405 p. refs
 (Contract DA-01-021-AMC-203(Z))
 (RSIC-202; AD-455069)

This report is a compilation of specific-heat, thermal-expansion, and thermal-conductivity data for materials of possible structural usefulness above 2500° F. Data are presented graphically with notations as to measurement methods and test conditions. Prominent laboratories currently making thermal-property measurements are identified.

Author

N65-15269* # Air Force Systems Command, Brooks AFB, Tex. Aerospace Medical Div.

HIGHLIGHTS OF FOREIGN BIOASTRONAUTICS, VOLUME 2, NO. 4

8 Oct. 1964. 15 p. refs
 (AMD-TR-64-16; AD-450339)

Presented is a program of experiments by the Soviets which is designed to establish the biological basis for man's long-term survivability in space. The program includes both ground-based laboratory research and experiments performed in high-altitude rockets and orbital vehicles. The effects of acceleration, vibration, noise, high temperature, reduced gravity, prolonged isolation, and ionizing radiation on numerous biological specimens were studied. Dogs were selected as

the principal biological specimens for investigating the effects of space flight. Test results showed that blood circulation and respiration parameters returned to initial values within 5 to 6 minutes after exposure to weightlessness. It was concluded that the stresses of space flight can be tolerated by animals. Also included in this study is a bibliography of published Soviet reports on the results of satellite biological experimentation. R.R.D.

examined. In three abstracting-indexing journals, the abstract usually appeared during the original publication year of the paper concerned. If an abstract did not appear by the end of the first postpublication year, it was unlikely to appear at a later date. Author

N65-15307# Navy Weather Research Facility, Norfolk, Va.
A HISTORICAL SURVEY OF STATISTICAL WEATHER PREDICTION

James L. Kerr Dec. 1963 30 p refs
 (NWRF-41-1263-087; AD-433743)

This work presents the history of the use of statistics in weather forecasting and describes the evolution of the more important statistical methods in this field: graphical techniques, periodicity, empirical orthogonal functions, and multiple discriminant analysis. A bibliography consisting of 141 references, divided by topics, and an appendix listing these references chronologically are included. Author

N65-15308# Federal Aviation Agency, Oklahoma, City, Okla.
 Psychology Labs.

AVIATION MEDICINE TRANSLATIONS: ANNOTATED BIBLIOGRAPHY OF RECENTLY TRANSLATED MATERIALS, II

Jerry V. Tobias, William E. Collins, and Mary Ellen Allen Oct. 1964 13 p refs
 (AM-64-16)

An annotated bibliography of translations of foreign-language research articles is presented. The 27 listed entries are concerned with studies of auditory fatigue, auditory malingering, voluntary nystagmus, vestibular function, objective and subjective fatigue, drugs, and forensic science. Procedures for obtaining copies of the translations are included. Author

N65-15357# National Academy of Sciences-National Research Council, Washington, D.C. Space Science Board
BIBLIOGRAPHY ON SPACE SCIENCES (UNITED STATES-1960)

Apr. 1961 74 p refs Revised Supersedes Bibliog. in append. V of U.S. Space Sci. Program: Rept. to COSPAR, Florence, Apr. 1961

N65-15377*# George Washington U., Washington, D.C. Biological Sciences Communication Project

ABSTRACTING AND INDEXING COVERAGE OF THE LITERATURE OF SPACE BIOLOGY

Richard H. Amacher and Joe W. Tyson [1964] 22 p
 (Grant NsG-485)
 (NASA-CR-60326) OTS: HC \$1.00/MF \$0.50

A total of 147 research papers pertaining to space biology, which were published in 1962, were selected from 31 sources. In addition, 480 papers published during the period 1959-1964 were selected because the authors are current grantees-contractors of the National Aeronautics and Space Administration. For the first group of 147 titles, a search was made in four abstracting-indexing journals. For the second group of 480 titles, a search was made in six abstracting-indexing journals. Of the first group of 147 papers, 68.3% were found in one or more of the four abstracting-indexing journals. Of the second group of 480 papers, 59.4% were found in one or more of the six abstracting-indexing journals

1964

A64-16280

HEAT TRANSFER BIBLIOGRAPHY - RUSSIAN WORKS.

A. V. Luikov (Belorussian Academy of Sciences, Institute of Heat and Mass Transfer, Minsk, Belorussian SSR).

International Journal of Heat and Mass Transfer, vol. 7, Mar. 1964, p. 371-396.

Presentation of 630 titles covering the period 1961-1964, with all but a few titles dated 1962. Included are books of a general nature and papers and articles in the following categories: general heat-transfer problems; analytical methods for solving heat and mass transfer problems; thermodynamics; experimental methods for solving heat and mass transfer problems; heat and mass transfer with phase conversions; heat and mass transfer with chemical conversions; processes at ultra-high speeds; drying processes; thermophysical properties of various materials, heat agents, and the methods for their determination; high-temperature physics and magnetohydrodynamics; processes in nuclear reactors; and process and apparatus construction.

A64-16495

SOLAR SYSTEM SCIENCE - 1962 LITERATURE SURVEY. IV.

Edna O'Connell (RAND Corp., Santa Monica, Calif.).

Icarus, vol. 2, Dec. 1963, p. 501-508.

USAF-NASA-supported research.

Survey of papers on the solar system cited from miscellaneous journals and corporation publications on the subject. It is noted that the list of sources provided does not signify that all the publications of each one of the sources have been searched, due to the unavailability of complete indices of these miscellaneous publications. The index is arranged in the categories of atmospheric physics, cosmogony, interplanetary physics, planetary biology, geodesy, geology, and physics, as well as solar physics, solar system dynamics, and solar-terrestrial relations.

A64-16496

SOLAR SYSTEM SCIENCE - 1962 LITERATURE SURVEY - CUMULATIVE AUTHOR-INSTITUTION INDEX.

Edna O'Connell (RAND Corp., Santa Monica, Calif.).

Icarus, vol. 2, Dec. 1963, p. 509-551.

USAF-NASA-supported research.

Review of papers on solar system science. Provided is a cumulative index, by author and institution, of a survey of international literature on the subject published in 1962.

A64-17188

HEAT TRANSFER BIBLIOGRAPHY.

E. R. G. Eckert, E. M. Sparrow, W. E. Ibele, and R. J. Goldstein (Minnesota, University, Dept. of Mechanical Engineering, Heat Transfer Laboratory, Minneapolis, Minn.).

International Journal of Heat and Mass Transfer, vol. 7, Apr. 1964, p. 485-498, 470 refs.

Comprehensive bibliography on heat transfer, arranged in the following groups: applications, books, boundary-layer flow, change of phase, channel flow, conduction, flow with separated regions, heat and mass transfer, liquid metals, low density, magnetohydrodynamics, measurement techniques, natural convection, packed and fluidized beds, radiation, rotating surfaces; thermodynamic and transport properties, and transfer mechanics.

A64-20146

1964 STATE-OF-THE ART IN ASTRODYNAMICS.

Robert M. L. Baker, Jr. (Lockheed Aircraft Corp., Lockheed-California Co.; California, University, Los Angeles, Calif.). American Institute of Aeronautics and Astronautics, Annual Meeting, 1st, Washington, D.C., June 29-July 2, 1964, Paper 64-535, 10 p. Members, \$0.50; nonmembers, \$1.00.

Survey of some of the more significant literature and developments in astrodynamics during 1963. Special attention is given to problem areas where promising results are expected in the next

few years. The survey paper is divided into three sections that deal with the "pacing" problems in astrodynamics, the new books in the field, and a listing of some 1963 astrodynamics publications, (approximately 200) separated according to the subdivisions of astrodynamics.

A64-22078

A BIBLIOGRAPHY AND OVERVIEW OF HUMAN FACTORS REFERENCE WORKS.

Paul G. Ronco (Tufts University, Institute for Psychological Research, Medford, Mass.).

Human Factors, vol. 5, Dec. 1963, p. 549-568.

Presentation of current bibliography prepared from references that actually exist in the files of the Human Engineering Information and Analysis Service at Tufts University. The bibliography is composed of four sections: (1) books, (2) bibliographies, (3) reports, and (4) journals. The current status of reference works in the field of human factors is evaluated.

A64-22223

CHARGE STORAGE IN SOLID DIELECTRICS.

Bernhard Gross (Catholic University, Rio de Janeiro, Brazil). New York, American Elsevier Publishing Co., Inc., 1964. 153 p.

\$8.

A comprehensive bibliographical review is presented, including, in the great majority of cases, informative abstracts of the papers. The bibliography, which comprises the main body of the work, is preceded by a short survey, which gives criteria for the selection of material, shows the main lines of development, and points out essential results, referring to the pertinent entries for details. The material treats problems of charge storage and persistent polarization in solid dielectrics. The first section, consisting of 29 bibliographical entries, with abstracts, discusses measurement methods for surface and space charges, and the dissectible capacitor. In the second section, static charges without external field are treated in 64 entries which examine general matters and contact electrification, phase change and thermoelectric effect, and pyroelectricity and piezoelectricity. Section III is divided into two main parts. Part A examines surface effects in terms of Lichtenberg figures and static surface charges, surface breakdown and noise, and applications. Part B, on volume effects, opens with generalities followed by references, mostly with abstracts, which consider the mechanisms of dielectric conduction and polarization, and dielectric absorption. One hundred and fifteen entries make up the section. Field temperature effects and thermoelectrets form the subject matter for Section IV, which includes 174 references, with abstracts. The section is divided into 13 parts dealing with various aspects of the subject. Field radiation effects and photoelectrets, dealt with in 84 references to make up Section V, are covered from the aspects of photoconductivity of sulfur and anthracene, properties of photoelectrets, persistent internal polarization, and the effects of penetrating radiation and radioelectrets. The concluding section discusses radiation effects without field, with reference to charge storage by electron bombardment and gamma radiation effects, and consists of 43 sources, with abstracts. An authors' index is presented which is cross-referenced to the material making up the main body of the review. Scientists and technologists are considered to be the audience.

A64-22421

BIBLIOGRAPHIC COMMENTS ON SEQUENTIAL MACHINES.

Edward F. Moore (Bell Telephone Laboratories, Inc., Murray Hill, N.J.).

IN: SEQUENTIAL MACHINES - SELECTED PAPERS.

Edited by Edward F. Moore.

Reading, Mass., Addison-Wesley Publishing Co., Inc., 1964, p. 236-261. 38 refs.

Discussion of the method of treatment of the bibliography presented, with a selection of papers titled "Sequential Machines." Intended to be very inclusive, the bibliography is approximately three times as large as any previously published in this field. It is a direct listing of a deck of punched IBM cards which, since there is only one card per reference, permits easy sorting by language, date, subject, etc. The method of using the cards to consult the bibliography is described, and the bibliography itself is presented.

A64-25494**HEAT TRANSFER BIBLIOGRAPHY.**

E. R. G. Eckert, E. M. Sparrow, W. E. Ibele, and R. J. Goldstein (Minnesota, University, Dept. of Mechanical Engineering, Heat Transfer Laboratory, Minneapolis, Minn.).

International Journal of Heat and Mass Transfer, vol. 7, Aug. 1964, p. 931-948.

Compilation of papers and books, covering many aspects of heat transfer, that were published in 1963 and early 1964. The bibliography includes works on the applications of heat transfer and fifteen books on the subject of heat transfer. Aspects of heat transfer that are included are: boundary-layer flow, change of phase, channel flow, conduction, flow with separated regions, heat and mass transfer, liquid metals, low density, magnetohydrodynamics, measuring techniques, natural convection, packed and fluidized beds, radiation, rotating surfaces, thermodynamic and transport properties, and transfer mechanisms.

A64-25981**TECHNOLOGY AND APPLICATION OF LIGHTWEIGHT LOW-POWER NUCLEAR ROCKETS - SELECTED BIBLIOGRAPHY.**

Frank E. Rom and Mary Lee Petry (NASA, Lewis Research Center, Cleveland, Ohio).

NATO, AGARD, Lecture Series on Nuclear and Electric Rocket Propulsion, 2nd, Brussels, Belgium, Sept. 28-Oct. 3, 1964, Paper. 13 p.

Compilation including the most important and recent papers and reports with special emphasis on high-temperature refractory reactor materials, gas-cooled reactor technology, and the application of lightweight nuclear rockets to space missions. Also included are references on high-temperature heat transfer, two-phase heat transfer and pressure drop, nuclear powerplant components and controls, and manned nuclear rocket mission studies.

A64-26230 •
BIBLIOGRAPHY.

Telecommunications and Radio Engineering, Jan. 1964, Part 1 - Telecommunications, p. 79-84. Translation.

Bibliographic listing covering the following subjects: (1) general radio engineering; (2) communications lines; (3) radio-wave propagation; (4) antennas; (5) radio broadcasting and television; (6) communications networks, telephony, cables; and (7) communications equipment and components.

A64-27286 •**BIBLIOGRAPHY ON HEAT AND MASS TRANSFER [BIBLIOGRAFIJA PO TEPLU - I MASSOOBMENU].**

R. A. Dolinskaia.

Inzhenerno-Fizicheskii Zhurnal, vol. 9, Sept. 1964, p. 127-139. In Russian.

Listing of books and magazine articles on such heat- and mass-transfer fields as: thermodynamics, thermal conductivity, convective heat transfer, radiant heat transfer, transfer processes in the presence of phase conversions, transfer processes in the presence of chemical conversions, processes of simultaneous mass and heat transfer, aerohydrodynamics, drying processes, and thermophysical characteristics and methods of their determination. J. R.

Presentation of a bibliography of Japanese works on heat transfer in the following areas: (1) channel flow, (2) change of phase, (3) conduction, (4) measurement techniques, (5) natural convection, (6) radiation, and (7) transpiration and mass transfer. M. M.

A65-10557**BIBLIOGRAPHY ON THEORY AND TECHNOLOGY OF SINTERING (137 ANNOTATED REFERENCES, 1958-1963).**

Helen C. Friedemann.

IN: FUNDAMENTAL PHENOMENA IN THE MATERIAL SCIENCES; PROCEEDINGS OF THE FIRST SYMPOSIUM ON FUNDAMENTAL PHENOMENA IN THE MATERIAL SCIENCES, BOSTON, MASS., FEBRUARY 1, 1963. VOLUME I - SINTERING AND PLASTIC DEFORMATION.

Edited by L. J. Bonis and H. H. Hausner.

New York, Plenum Press, 1964, p. 105-130.

A selective review of work done in sintering in the various parts of the world during the years 1958-1963. The 137 annotated references listed in the bibliography are taken from the literature in the United States (55), United Kingdom (20), Soviet Union (15), Germany (14), France (7), Japan (7), and Poland (5), and other countries. The references deal mostly with the controversial subject of the theories behind the material movement going on during sintering and, to a smaller extent, with some more practical aspects of this subject. They cover metallic, ceramic, and plastic materials in order to show the reader the close interrelationship among these three types of materials. M. M.

A65-11903**HEAT TRANSFER.**

J. K. Ferrell and E. P. Stahel (North Carolina, State University, Raleigh, N.C.).

I & EC - Industrial and Engineering Chemistry, vol. 56, Dec. 1964, p. 53-60. 348 refs.

Review of heat-transfer research and development during the year preceding March, 1964, including references believed to be most useful to the chemical process industry. Discussions are presented of papers on: (1) methods for measuring the thermal conductivity and thermal diffusivity of solids; (2) heat transfer in process equipment; (3) conduction heat transfer; (4) convective heat transfer - including laminar flow, turbulent flow, natural convection, effects of external forces, rotating surfaces, and high-velocity heat transfer; (5) radiation-heat transfer; (6) boiling-heat transfer; (7) condensation; (8) liquid-metal heat transfer; (9) packed beds, fluidized beds, and porous media; (10) heat transfer with chemical reaction; and (11) coupled transport processes. References include five books and 343 papers. D. H.

A65-12648 =**BIBLIOGRAPHY ON HEAT AND MASS TRANSFER [BIBLIOGRAFIJA PO TEPLU - I MASSOOBMENU].**

R. A. Dolinskaia.

Inzhenerno-Fizicheskii Zhurnal, vol. 7, Nov. 1964, p. 124-136. In Russian.

Presentation of bibliography on heat and mass transfer consisting of: books and articles regarding general aspects of heat and mass transfer, thermodynamics, heat conductivity, heat transfer by convection, heat transfer by radiation, transport processes during phase transformations, transport processes in chemical conversions, mass transfer, processes of simultaneous heat and mass transfer, aerodynamics, drying processes, thermophysical characteristics, and methods for their determination; thermal measurement devices, heat and mass transfer at elevated temperatures in a plasma, transport processes in nuclear reactors, and transfer processes in industrial equipments. V. P.

A65-13164**SOLAR SYSTEM SCIENCE - SURVEY. III - BOOK NOTES, A SELECTED LIST.**

Edna O'Connell (RAND Corp., Santa Monica, Calif.).

Icarus, vol. 3, Nov. 1964, p. 365-374.

USAF-supported research.

Third section of the 1963 literature survey on solar system science, including descriptive listings of books published in 1963 and citations of reviews of these books from the technical journals. The numbering of the entries is self-contained and entries are arranged in alphabetical order by titles. M. M.

1965

A65-10193**HEAT TRANSFER BIBLIOGRAPHY - JAPANESE WORKS.**

Takashi Satō (Kyoto University, Dept. of Mechanical Engineering, Kyoto, Japan).

International Journal of Heat and Mass Transfer, vol. 7, Oct. 1964, p. 1141, 1142.

1964

LC ENTRIES

A64-80166

BIBLIOGRAPHY OF AVIATION MEDICINE IN JAPAN [WAGAKUNI NI
OKERU KOKU IGAKU BUNKEN MOKUROKU].
Tokyo, Japan: Aero-Med. Lab., JASDF, July 1, 1963. 303 p. In Japanese.
2725 refs.

This is a bibliography of the Japanese literature on aerospace medicine (without abstracts). The references are grouped in the following categories: General, Basic Aviation Medicine, Clinical Aviation Medicine, Aviation Psychology, Aptitude Tests, Human Engineering, Accidents, Air Transportation, Space Medicine, and Aerospace Science.

A64-80210

BIBLIOGRAPHY ON COMPUTERS IN THE LIFE SCIENCES.

Simulation, vol. 2, Mar. 1964, p. 38-41.

This is a bibliography including articles, monographs, and books on the use of computers in investigations of various aspects of the life sciences. The period covered begins with the year 1952 and concludes with 1963. The entries, without abstracts, are arranged alphabetically by author.

A64-80708

MOTOR SKILLS BIBLIOGRAPHY. XLII. PSYCHOLOGICAL ABSTRACTS,
1963, VOLUME 37, FIRST HALF.

R. B. Ammons and C. H. Ammons (Mont. State U., Missoula).

Perceptual and Motor Skills, vol. 19, Aug. 1964, p. 147-150. 99 refs.

An alphabetical listing of 99 articles on perceptual-motor skills.

A64-80710

PERCEPTION BIBLIOGRAPHY: XIV. PSYCHOLOGICAL INDEX, NO. 11,
1904.

R. B. Ammons and C. H. Ammons (Mont. State U., Missoula).

Perceptual and Motor Skills, vol. 19, Aug. 1964, p. 172-174. 76 refs.

An alphabetical listing of 76 references to work in perception in the
Psychological Index, No. 11, 1904.

A64-81138

MOTOR SKILLS BIBLIOGRAPHY: XLIII. PSYCHOLOGICAL AB-
STRACTS, 1963, VOLUME 37, SECOND HALF.

C. A. Ammons and R. B. Ammons (Mont. State U., Missoula).

Perceptual and Motor Skills, vol. 19, Oct. 1964, p. 415-418. 102 refs.

An alphabetical listing by authors of 102 articles investigating various skills is presented. Included in this group are studies on motion skills, reaction time, psychomotor performance, confinement, vibration, and weightlessness.

A64-81149

PERCEPTION BIBLIOGRAPHY: XV. BALDWIN'S DICTIONARY,
1893-1904.

C. H. Ammons and R. B. Ammons (Mont. State U., Missoula).

Perceptual and Motor Skills, vol. 19, Oct. 1964, p. 400-402. 81 refs.

A list of 81 items for 1893 to 1904 on auditory and visual per-
ception is presented.

Subject Index

BIBLIOGRAPHIES ON AEROSPACE SCIENCE / a continuing bibliography APRIL 1965

Listing of Subject Headings of Reports

A Notation of Content, rather than the title of the document, appears under each subject heading; it is listed under several headings to provide multiple access to the subject content. The accession number is located beneath and to the right of the Notation of Content, e.g., N64-12345. Under any one subject heading, the accession numbers are arranged in sequence.

A

ABLATION

THERMAL ENVIRONMENT AND PROTECTION OF STRUCTURES
BY ABLATIVE TECHNIQUES - ANNOTATED BIBLIOGRAPHY
PIBAL-686 N64-33318

ABSTRACTS

BIBLIOGRAPHY AND ABSTRACTS - AIRCRAFT CRASH, FIRE,
RESCUE, AND EVACUATION TECHNOLOGY
ADS-16 N64-33245

SOVIET METEOROLOGY AND CLIMATOLOGY ABSTRACTS
ATD-P-64-55 N65-10046

ABSTRACTING AND INDEXING COVERAGE OF SPACE BIOLOGY
LITERATURE
NASA-CR-60326 N65-15377

ACCELERATION STRESS

BIOMEDICAL RESEARCH IN ACCELERATION, IMPACT,
WEIGHTLESSNESS, VIBRATION, AND EMERGENCY ESCAPE
AND RESTRAINT SYSTEM - BIBLIOGRAPHY
CARI-63-30 N64-22711

ACTIVATION ENERGY

COMPARATIVE BIBLIOGRAPHY OF ACTIVATION ANALYSIS
EUR-1886.F N65-14755

ADHESIVE

ADHESIVES, SEALS, GASKETS, AND POLYMERIC MATERIALS
FOR AEROSPACE APPLICATIONS - BIBLIOGRAPHY
SB-63-77 N64-26823

AERODYNAMIC CHARACTERISTICS

AERODYNAMIC CHARACTERISTICS OF BODIES OF
REVOLUTION WITH FINS - ANNOTATED BIBLIOGRAPHY
SB-63-76 N64-23880

ANNOTATED BIBLIOGRAPHY OF AERODYNAMIC
CHARACTERISTICS OF BODIES OF REVOLUTION WITHOUT
FINS
SB-63-75 N64-27793

BIBLIOGRAPHY ON AERODYNAMIC CHARACTERISTICS OF
RING WINGS
RSIC-285 N65-14220

AERODYNAMIC HEATING

AERODYNAMIC HEATING PARAMETER ASSOCIATED WITH
SPACE VEHICLES - BIBLIOGRAPHY
SB-63-18 N64-19131

AERODYNAMIC NOISE

BIBLIOGRAPHY ON AEROSONICS - AERODYNAMIC SOUND AND
FLUID DYNAMICS OF JET FLOW
REPT.-64-20 N64-25207

AERODYNAMICS

BIBLIOGRAPHY FOR TRISONIC AERODYNAMICS OF CONE-
CYLINDER-FLARE-CYLINDER TYPE BODIES
NASA-CR-60057 N65-14538

AERONAUTICS

BIBLIOGRAPHY ON AERONAUTICAL WEIGHT ESTIMATION AND
CONTROL N64-28303

AEROSOL

DETECTION TECHNIQUES AND ATMOSPHERIC DISPERSION
OF TOXIC GASES AND AEROSOLS
SB-63-39 N64-20531

AEROSPACE MEDICINE

BIBLIOGRAPHY OF AEROSPACE MEDICINE IN JAPAN
A64-80166

AEROSPACE MEDICINE AND BIOLOGY - BIBLIOGRAPHY
N64-20020

ANNOTATED BIBLIOGRAPHY ON AEROSPACE MEDICINE AND
BIOLOGY
NASA-SP-7011 N64-25948

ANNOTATED BIBLIOGRAPHY ON AEROSPACE MEDICINE AND
BIOLOGY
NASA-SP-7011/02/ N64-32407

ANNOTATED BIBLIOGRAPHY OF AEROSPACE MEDICINE AND
BIOLOGY
NASA-SP-7011/03/ N64-32741

ANNOTATED BIBLIOGRAPHY ON AEROSPACE MEDICINE AND
BIOLOGY
NASA-SP-7011/04/ N65-10228

ANNOTATED BIBLIOGRAPHY ON AEROSPACE MEDICINE AND
BIOLOGY
NASA-SP-7011/01/ N65-11057

AEROSPACE MEDICINE AND BIOLOGY - ANNOTATED
BIBLIOGRAPHY
NASA-SP-7011/05/ N65-13829

AEROSPACE TECHNOLOGY

BIBLIOGRAPHIES ON AEROSPACE SCIENCE
NASA-SP-7006 N64-26753

ANNOTATED BIBLIOGRAPHY ON AEROSPACE SCIENCE AND
TECHNOLOGY
NASA-CR-58761 N64-32991

AIRCRAFT NOISE

ANNOTATED BIBLIOGRAPHY ON AIRCRAFT NOISE
TIL/818/73/VOL. 3 N64-27001

AIRCRAFT SAFETY

BIBLIOGRAPHY AND ABSTRACTS - AIRCRAFT CRASH, FIRE,
RESCUE, AND EVACUATION TECHNOLOGY
ADS-16 N64-33245

AIRGLOW

ANNOTATED BIBLIOGRAPHY ON SKY ILLUMINATION -
AIRGLOW, AURORAS, NOCTILUCENT CLOUDS, ZODIACAL
LIGHT, GEGENSCHNEIN, AND INSTRUMENTATION
AID-B-64-42 N64-24951

AIRPORT

BIBLIOGRAPHY ON DESIGN, CONSTRUCTION AND

ALUMINUM

SUBJECT INDEX

MAINTENANCE OF AIRPORTS AND HELIPORTS
N64-20810

ALUMINUM
FLUXES AND THEIR USE IN SOLDERING ALUMINUM -
BIBLIOGRAPHY
TID-3577 N64-18458

ALUMINUM ALLOY
CONVERSION COATINGS FOR ALUMINUM ALLOYS -
ANNOTATED BIBLIOGRAPHY
NASA-CR-56317 N64-25766

ALUMINUM HYDRIDE
ANNOTATED BIBLIOGRAPHY ON SYNTHESIS AND PHYSICAL
PROPERTIES OF ALUMINUM HYDRIDE AND RELATED
COMPOUNDS
TDR-269/4210-10/-4 N64-21026

ANIMAL STUDY
BIBLIOGRAPHY - RADIATION EFFECT ON ANIMALS, MAN,
AND PLANTS
SB-62-60 N64-20517

ARGON
BIBLIOGRAPHY OF THERMOPHYSICAL PROPERTIES OF ARGON
NASA-CR-56793 N64-27835

ARTIFICIAL INTELLIGENCE
ARTIFICIAL INTELLIGENCE - EXAMINATION OF PHYSICAL,
MATHEMATICAL, & LOGICAL MODELS OF BRAIN FUNCTION -
BIBLIOGRAPHY
NASA-CR-53830 N64-19616

ASTRODYNAMICS
ASTRODYNAMIC DEVELOPMENTS IN 1963, LISTING NEW
BOOKS AND PUBLICATIONS
AIAA PAPER 64-535 A64-20146

ASTRONAUT PERFORMANCE
IONIZING RADIATION EFFECTS ON PERFORMANCE
CAPABILITIES OF ASTRONAUTS - ANNOTATED
BIBLIOGRAPHY
SRB-63-13 N64-23365

ASTRONOMY
BIBLIOGRAPHY - ASTRONOMY IN USSR
FTD-TT-63-1149, PT. 2 N64-23100

ATMOSPHERE
LUNAR INFLUENCE ON ATMOSPHERIC AND GEOPHYSICAL
PHENOMENA - BIBLIOGRAPHY N64-26023

ATOMIC ENERGY
BIBLIOGRAPHY ON ATOMIC RADIATION EFFECTS
TID-3909 /SUPPL. 2/ N64-33138

ATTITUDE CONTROL
BIBLIOGRAPHY ON ATTITUDE CONTROL OF SATELLITES AND
SPACE VEHICLES
SID-63-232 N64-18391

AUDITORY PERCEPTION
PERCEPTION BIBLIOGRAPHY WITH REFERENCES TO VISUAL,
AUDITORY, TIME, GUSTATORY, AND TACTILE PERCEPTION
A64-80710

AURORA
ANNOTATED BIBLIOGRAPHY ON SKY ILLUMINATION -
AIRGLOW, AURORAS, NOCTILUCENT CLOUDS, ZODIACAL
LIGHT, GEGENSCHIN, AND INSTRUMENTATION
AID-B-64-42 N64-24951

B

BALLISTIC MISSILE
BALLISTIC MISSILES PENETRATION AIDS - BIBLIOGRAPHY
B-07-64-3 N65-10974

BALLISTICS
BIBLIOGRAPHY ON BALLISTICS, GUIDED MISSILES, AND
WEAPONS
TDC-15963 N64-32590

BATTERY
ELECTROCHEMICAL BATTERIES - ANNOTATED BIBLIOGRAPHY
SB-63-14 N64-22957

BEARING
ANNOTATED BIBLIOGRAPHY ON GEARS, BEARINGS, AND
LUBRICANTS FOR AEROSPACE APPLICATIONS
SB-63-59 N64-24921

BERYLLIUM
ANNOTATED BIBLIOGRAPHY ON THERMODYNAMICS OF
BERYLLIUM AND ITS REFRACTORY COMPOUNDS - OXIDES,
CARBIDES, & NITRIDES
SB-63-16 N64-20893

BERYLLIUM - ANNOTATED BIBLIOGRAPHY
SB-63-54 N64-25666

BERYLLIUM ALLOY
WELDING AND BRAZING OF BERYLLIUM AND ITS
ALLOYS - BIBLIOGRAPHY
SB-63-61 N64-20547

BIOASTRONAUTICS
EXOBIOLGY - ANNOTATED BIBLIOGRAPHY
NASA-CR-53806 N64-23393

ANNOTATED BIBLIOGRAPHY ON AEROSPACE MEDICINE AND
BIOLOGY
NASA-SP-7011 N64-25948

ANNOTATED BIBLIOGRAPHY ON AEROSPACE MEDICINE AND
BIOLOGY
NASA-SP-7011/02/ N64-32407

ANNOTATED BIBLIOGRAPHY OF AEROSPACE MEDICINE AND
BIOLOGY
NASA-SP-7011/03/ N64-32741

SOVIET BIOSCIENCE IN SPACE - BIOASTRONAUTICS
AMD-TR-64-16 N65-15269

ABSTRACTING AND INDEXING COVERAGE OF SPACE BIOLOGY
LITERATURE
NASA-CR-60326 N65-15377

BIOINSTRUMENTATION
BIBLIOGRAPHY OF BIOSENSORS
NASA-CR-56347 N64-24116

BIOLOGICAL EFFECT
RADIATION AND RADIOISOTOPES EFFECTS ON BIOLOGICAL
SYSTEMS - ANNOTATED BIBLIOGRAPHY
TID-3098, BK. 1 N64-19035

ANNOTATED BIBLIOGRAPHY ON PHYSICAL CHARACTERISTICS
OF THERMAL RADIATION AND RADIATION SOURCES, AND
PROTECTION AGAINST BIOLOGICAL EFFECTS
TDC-33500 N64-32018

BIOLOGY /GEN/
BIONICS - BIBLIOGRAPHY OF BIOLOGICAL RECEPTORS AND
REGULATORS AND APPLICATION TO ENGINEERING DESIGN
SRB-63-2 N64-22372

COMPUTER APPLICATIONS IN MEDICINE AND BIOLOGICAL
SCIENCES - BIBLIOGRAPHY
SP-1025/001/00 N64-32324

BIOLOGICAL CONTROL SYSTEMS - VESTIBULAR EFFECT ON
SPACE ORIENTATION OF MAN
NASA-CR-59441 N65-10363

BIONICS
BIONICS - BIBLIOGRAPHY OF BIOLOGICAL RECEPTORS AND
REGULATORS AND APPLICATION TO ENGINEERING DESIGN
SRB-63-2 N64-22372

BIOTECHNOLOGY
ANNOTATED BIBLIOGRAPHY ON HUMAN SCIENCES IN
INDUSTRY - ERGONOMICS N64-28104

BODY OF REVOLUTION
AERODYNAMIC CHARACTERISTICS OF BODIES OF
REVOLUTION WITH FINS - ANNOTATED BIBLIOGRAPHY
SB-63-76 N64-23880

BOILING
BIBLIOGRAPHY ON BOILING HEAT TRANSFER
REPT.-19 N64-27346

BOOSTER
BIBLIOGRAPHY ON WIND-INDUCED OSCILLATIONS OF

- SATURN BOOSTER IN VERTICAL LAUNCH POSITION
NASA-CR-59329 N64-33769
- BOUNDARY LAYER FLOW**
HEAT TRANSFER BIBLIOGRAPHY INCLUDING RADIATION,
CONDUCTION, CONVECTION, BOUNDARY LAYERS, MASS
TRANSFER, MHD AND THERMODYNAMIC PROPERTIES
A64-25494
- BRAIN**
ARTIFICIAL INTELLIGENCE - EXAMINATION OF PHYSICAL,
MATHEMATICAL, & LOGICAL MODELS OF BRAIN FUNCTION -
BIBLIOGRAPHY
NASA-CR-53830 N64-19616
- BRAZING**
WELDING AND BRAZING OF BERYLLIUM AND ITS
ALLOYS - BIBLIOGRAPHY
SB-63-61 N64-20547
- C**
- CARDIOVASCULAR SYSTEM**
DYNAMIC RESPONSE IN THERMOREGULATION, HORMONAL,
CARDIOVASCULAR, AND BEHAVIORAL SYSTEM
NASA-CR-141 N65-13546
- CHARGED PARTICLE**
CHARGED PARTICLES IN UPPER ATMOSPHERE - ANNOTATED
BIBLIOGRAPHY
ATD-P-64-65 N65-14170
- CHEMICAL ANALYSIS**
CHEMICAL DETECTORS - BIBLIOGRAPHY
LAMS-2378 /VOL. 2/ N64-18397
- CHEMISTRY /GEN/**
BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF MATERIALS IN CONDENSED STATE
N64-26900
- BIBLIOGRAPHY OF GAS AND CONDENSED PHASE REACTIONS
OF HIGH TEMPERATURE CHEMISTRY AND PHYSICS
N64-28694
- BIBLIOGRAPHY ON SHOCK TUBE APPLICATIONS IN
CHEMISTRY AND PHYSICS
MLM-1189 N64-30625
- BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF MATERIALS IN CONDENSED STATE
N65-11921
- CHROMATOGRAPHY**
BIBLIOGRAPHY OF REVERSED-PHASE PARTITION
CHROMATOGRAPHY
IS-950 N64-31015
- CLIMATOLOGY**
METEOROLOGY AND CLIMATOLOGY - ANNOTATED
BIBLIOGRAPHY
AID-P-64-37 N64-23272
- SOVIET METEOROLOGY AND CLIMATOLOGY ABSTRACTS
ATD-P-64-55 N65-10046
- CLINICAL MEDICINE**
BIOMEDICAL RESEARCH IN ACCELERATION, IMPACT,
WEIGHTLESSNESS, VIBRATION, AND EMERGENCY ESCAPE
AND RESTRAINT SYSTEM - BIBLIOGRAPHY
CARI-63-30 N64-22711
- CLOUD**
BIBLIOGRAPHY ON NOCTILUCENT AND NACREOUS CLOUDS,
CIRRIFORM CLOUDS, AND CONDENSATION TRAILS
ERDA-181 N64-32034
- COMBUSTION**
LIQUID ROCKET ENGINE COMBUSTION PROCESSES -
LITERATURE SEARCH MECHANICS
NASA-CR-60041 N65-14533
- COMMUNICATION SYSTEM**
BIBLIOGRAPHY LISTING ON RADIO ENGINEERING, RADIO
PROPAGATION, ANTENNAS, COMMUNICATION EQUIPMENT AND
COMPONENTS
A64-26230
- COMMUNICATIONS SATELLITE**
BIBLIOGRAPHY ON COMMUNICATIONS SATELLITES
- NASA-SP-7004 N64-25874
- BIBLIOGRAPHY ON ECHO COMMUNICATIONS SATELLITE
AD-422849 N64-33847
- COMPRESSED AIR**
BIBLIOGRAPHY ON COMPRESSED AIR SYSTEMS
KAPL-M-TL-1 N64-21844
- COMPUTER**
BIBLIOGRAPHY ON COMPUTERS IN LIFE SCIENCES
A64-80210
- COMPUTER METHOD**
ANNOTATED BIBLIOGRAPHY ON DIGITAL COMPUTER METHODS
OF ELECTRICAL AND ELECTRONIC SYSTEMS DESIGN
SB-63-65 N64-20895
- COMPUTER APPLICATIONS IN MEDICINE AND BIOLOGICAL
SCIENCES - BIBLIOGRAPHY
SP-1025/001/00 N64-32324
- COMPUTER PROGRAMMING**
MATHEMATICAL PROGRAMMING - BIBLIOGRAPHY
ORC-64-6/RN/ N64-23274
- COMPUTER SIMULATION**
ANNOTATED BIBLIOGRAPHY ON RADAR SIMULATION BY
ANALOG OR DIGITAL COMPUTER TECHNIQUES
SB-64-12 N64-32966
- CONDENSATION**
BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF MATERIALS IN CONDENSED STATE
N64-19810
- BIBLIOGRAPHY OF GAS AND CONDENSED PHASE REACTIONS
OF HIGH TEMPERATURE CHEMISTRY AND PHYSICS
N64-28694
- BIBLIOGRAPHY ON NOCTILUCENT AND NACREOUS CLOUDS,
CIRRIFORM CLOUDS, AND CONDENSATION TRAILS
ERDA-181 N64-32034
- CONDUCTIVITY**
SPECIFIC HEAT, THERMAL EXPANSION, AND THERMAL
CONDUCTIVITY DATA FOR STRUCTURAL MATERIALS AT
HIGH TEMPERATURES - ANNOTATED BIBLIOGRAPHY
RSIC-202 N65-15174
- CONFERENCE**
PLASTIC MATERIALS - CONFERENCE
PLASTEC-14 N64-24333
- INDEXED BIBLIOGRAPHY OF CONFERENCE PAPERS ON
PLASTIC MATERIAL
PLASTEC-17 N64-33137
- COOLING SYSTEM**
ANNOTATED BIBLIOGRAPHY ON MATERIALS FOR REENTRY
CONDITIONS AND RELATED COOLING SYSTEMS
RR-TR-64-1 N64-21495
- CORROSION**
ANNOTATED BIBLIOGRAPHY ON CORROSION EFFECTS OF
PURE AND DISTILLED WATER
NASA-CR-58640 N64-28887
- CORROSION PREVENTION**
RUST REMOVAL AND CORROSION PREVENTIVE COMPOUNDS -
BIBLIOGRAPHY
RIA-63-2762 N64-18656
- COSMIC RADIATION**
SOLAR AND GEOPHYSICAL ASPECTS OF COSMIC RADIATION
AND MAGNETOHYDRODYNAMICS - BIBLIOGRAPHY
AFCL-63-893 N64-26717
- COSMIC RADIATION AND NEAR EARTH SPACE
ENVIRONMENT - BIBLIOGRAPHY
SB-63-71 N64-26822
- CRYSTAL GROWTH**
CRYSTALLOGRAPHY, CRYSTAL GROWTH & CHEMISTRY,
GLASS, IONS FOR LASERS, AND ANNOTATED BIBLIOGRAPHY
ON LASER MATERIALS
NASA-CR-75 N64-30992
- GROWTH AND CHARACTERIZATION OF CRYSTALS

CRYSTAL STRUCTURE

SUBJECT INDEX

NBS-TN-197

N65-12453

CRYSTAL STRUCTURE

BIBLIOGRAPHY ON GROUPS IV, V, AND VI TRANSITION METALS - PREPARATION METHODS, CRYSTAL STRUCTURE, PHASE TRANSITIONS, AND PHYSICAL, MECHANICAL, AND TRANSPORT PROPERTIES

ORNL-RMIC-3

N64-31466

CRYSTALLOGRAPHY

CRYSTALLOGRAPHY, CRYSTAL GROWTH & CHEMISTRY, GLASS, IONS FOR LASERS, AND ANNOTATED BIBLIOGRAPHY ON LASER MATERIALS

NASA-CR-75

N64-30992

CUTANEOUS PERCEPTION

PERCEPTION BIBLIOGRAPHY WITH REFERENCES TO VISUAL, AUDITORY, TIME, GUSTATORY, AND TACTILE PERCEPTION

A64-80710

D

DATA LINK

SPACE VEHICLE DATA LINK REQUIREMENTS - BIBLIOGRAPHY

SB-63-57

N64-23345

DEFORMATION

BIBLIOGRAPHY ON ROCK DEFORMATION

AFRL-64-713

N64-32113

DETECTOR

CHEMICAL DETECTORS - BIBLIOGRAPHY

LAMS-2378 /VOL. 2/

N64-18397

DIELECTRICS

BIBLIOGRAPHY ON CHARGE STORAGE IN SOLID DIELECTRICS

A64-22223

DIFFUSION

BIBLIOGRAPHY ON MAGNETIC DIFFUSION & DRIFT INSTABILITIES OF PLASMAS

MATT-285

N64-28421

DIGITAL COMPUTER

DIGITAL COMPUTER APPLICATIONS IN STRUCTURAL ENGINEERING - BIBLIOGRAPHY

N64-20613

DISPERSION

DETECTION TECHNIQUES AND ATMOSPHERIC DISPERSION OF TOXIC GASES AND AEROSOLS

SB-63-39

N64-20531

DISTILLATION

ANNOTATED BIBLIOGRAPHY ON HIGH VACUUM LIQUID METAL DISTILLATION

IS-799

N64-26029

DRUG

ANNOTATED BIBLIOGRAPHY OF FATIGUE, MALINGERING, NYSTAGMUS, DRUGS, AND FORENSIC SCIENCE

AM-64-16

N65-15308

DUCTED FLOW

BIBLIOGRAPHY ON HYDRODYNAMICS OF GUIDE VANE PIPE AND DUCT FLOW

BIB-16

N65-13066

DYNAMIC PROGRAMMING

DYNAMIC PROGRAMMING - BIBLIOGRAPHY

RM-3951-PR

N64-22614

DYNAMIC RESPONSE

DYNAMIC RESPONSE IN THERMOREGULATION, HORMONAL, CARDIOVASCULAR, AND BEHAVIORAL SYSTEM

NASA-CR-141

N65-13546

DYNAMICS

BIBLIOGRAPHY ON DYNAMIC LOADING

SB-63-53

N64-20532

E

ECHO SATELLITE

BIBLIOGRAPHY ON ECHO COMMUNICATIONS SATELLITE

AD-422849

N64-33847

EJECTION

ANNOTATED BIBLIOGRAPHY OF STAGE SEPARATION AND

EJECTION SYSTEMS OF FLIGHT VEHICLES

SB-64-14

N64-29314

ELASTICITY

TECHNIQUES AND FUNDAMENTALS OF YOUNGS MODULUS AND INTERNAL FRICTION MEASUREMENTS AND POROSITY EFFECT ON ELASTICITY - ANNOTATED BIBLIOGRAPHY

IS-925

N65-14665

ELECTRET

BIBLIOGRAPHY ON CHARGE STORAGE IN SOLID DIELECTRICS

A64-22223

ELECTRIC PROPULSION

ANNOTATED BIBLIOGRAPHY ON ELECTRIC PROPULSION

NASA-CR-58361

N64-29522

ELECTROCHEMICAL CELL

ELECTROCHEMICAL BATTERIES - ANNOTATED BIBLIOGRAPHY

SB-63-14

N64-22957

ELECTROMAGNETIC SCATTERING

BIBLIOGRAPHY ON ELECTROMAGNETIC SCATTERING

AD-440869

N64-28509

ELECTRONIC COUNTERMEASURE

BIBLIOGRAPHY OF ELECTRONIC COUNTERMEASURES AND COUNTER-COUNTERMEASURES

SB-63-64

N64-22694

ANNOTATED BIBLIOGRAPHY ON ELECTRONIC COUNTERMEASURES AND COUNTER-COUNTERMEASURES

SB-64-13

N64-32972

ELECTRONIC EQUIPMENT

MICROMINIATURIZATION OF ELECTRONIC EQUIPMENT - ANNOTATED BIBLIOGRAPHY

SB-62-67

N64-23883

BIBLIOGRAPHY ON EFFECTS OF VAN ALLEN RADIATION BELTS ON ELECTRONIC MATERIALS

PDC-SEARCH-63-003

N64-32057

BIBLIOGRAPHY OF ELECTRONIC EQUIPMENT RELIABILITY AND FAILURE SYSTEMS, AND MATHEMATICAL MODELS

UCRL-12040

N65-15065

ELECTRONIC MODULE

ANNOTATED BIBLIOGRAPHY ON PRINTED CIRCUITS AND WELDED ELECTRONIC MODULES

REPT.-3-35-64-2

N64-21148

ELECTRONIC PACKAGING

PACKAGING AND INTERCONNECTIONS FOR MINIATURIZED ELECTRONIC SYSTEMS - BIBLIOGRAPHY

SB-63-51

N64-26821

ELECTRONICS

ANNOTATED BIBLIOGRAPHY ON DIGITAL COMPUTER METHODS OF ELECTRICAL AND ELECTRONIC SYSTEMS DESIGN

SB-63-65

N64-20895

ENGINEERING /GEN/

VALUE ENGINEERING - ANNOTATED BIBLIOGRAPHY

LMSC-4-11-64-6

N65-10573

ENVIRONMENT

NATURAL ENVIRONMENT OF MANNED ORBITING LABORATORY

AFRL-64-845

N65-14044

ETHYL ALCOHOL

EFFECTS OF ALCOHOL AND HYPOXIA ON HETEROPHORIAS - REVIEW OF EXPERIMENTAL STUDIES

AD-433129

N64-17924

EXPERIMENT DESIGN

BIBLIOGRAPHY OF EXPERIMENT DESIGN RESEARCH

MRC-405

N64-17921

EXTRATERRESTRIAL ENVIRONMENT

BIBLIOGRAPHY OF EXTRATERRESTRIAL RESEARCH

AFWL-TDR-64-29

N64-32101

EXTRATERRESTRIAL MATTER

ANNOTATED BIBLIOGRAPHY ON EXTRATERRESTRIAL MATTER IN INTERPLANETARY SPACE

REPT. 9990-6649-KU-000

N64-20475

F

FAILURE

BIBLIOGRAPHY OF ELECTRONIC EQUIPMENT RELIABILITY
AND FAILURE SYSTEMS, AND MATHEMATICAL MODELS
UCRL-12040 N65-15065

FATIGUE

ANNOTATED BIBLIOGRAPHY OF FATIGUE, MALINGERING,
NYSTAGMUS, DRUGS, AND FORENSIC SCIENCE
AM-64-16 N65-15308

FERROELECTRICS

SUPPLEMENT ON FERROELECTRICS - BIBLIOGRAPHY
EDL-M557 N64-19559

FIN

ANNOTATED BIBLIOGRAPHY OF AERODYNAMIC
CHARACTERISTICS OF BODIES OF REVOLUTION WITHOUT
FINS
SB-63-75 N64-27793

FLIGHT VEHICLE

ANNOTATED BIBLIOGRAPHY OF STAGE SEPARATION AND
EJECTION SYSTEMS OF FLIGHT VEHICLES
SB-64-14 N64-29314

FLUID AMPLIFICATION

BIBLIOGRAPHY OF FLUID AMPLIFICATION TECHNIQUES
N64-25307

ANNOTATED BIBLIOGRAPHY ON FLUID AMPLIFIERS
NASA-CR-102 N64-31700

FLUORINE

BIBLIOGRAPHY OF FLUORINE AND FLOX OXIDIZERS FOR
SPACECRAFT PROPULSION SYSTEMS
NASA-TM-X-53149 N65-14430

FLUORINE-LIQUID OXYGEN /FLOX/

BIBLIOGRAPHY OF FLUORINE AND FLOX OXIDIZERS FOR
SPACECRAFT PROPULSION SYSTEMS
NASA-TM-X-53149 N65-14430

FLUX

FLUXES AND THEIR USE IN SOLDERING ALUMINUM -
BIBLIOGRAPHY
TID-3577 N64-18458

FORECASTING

ANNOTATED BIBLIOGRAPHY ON LONG RANGE PLANNING AND
TECHNOLOGICAL FORECASTING
SRB-63-12 N64-22200

FRICTION

TECHNIQUES AND FUNDAMENTALS OF YOUNGS MODULUS AND
INTERNAL FRICTION MEASUREMENTS AND POROSITY
EFFECT ON ELASTICITY - ANNOTATED BIBLIOGRAPHY
IS-925 N65-14665

FUEL ELEMENT

BIBLIOGRAPHY ON EFFECTS OF WATER VAPOR AND OTHER
GASES ON REACTOR FUEL ELEMENTS
UCRL-7836 N64-25864

SYSTEM FOR NUCLEAR AUXILIARY POWER /SNAP/ PROGRAM
FUELS USING ZIRCONIUM AND URANIUM SYSTEMS -
BIBLIOGRAPHY
NAA-SR-9525, VOL. I N64-25866

FUNCTION GENERATOR

EQUATIONS FOR SYNTHESIS OF FOUR-BAR LINKAGE
FUNCTION GENERATORS FOR ROTATING SHAFT
COORDINATION N65-12890

FUSION WELDING

FUSION THERMIT WELDING - BIBLIOGRAPHY
SB-63-25 N64-20518

ANNOTATED BIBLIOGRAPHY ON FUSION WELDING OF ALLOYS
OF MAGNESIUM WITH LITHIUM AND THORIUM
SB-63-52 N64-23881

G

GAME THEORY

BIBLIOGRAPHY ON OPERATIONS RESEARCH & GAME THEORY
TDC-36938 N64-32591

GAS

BIBLIOGRAPHY ON EFFECTS OF WATER VAPOR AND OTHER
GASES ON REACTOR FUEL ELEMENTS
UCRL-7836 N64-25864

GAS PHASE

HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF GASES
AND GAS-CONDENSED PHASE REACTIONS - BIBLIOGRAPHY
REPT.-11 N64-19811

BIBLIOGRAPHY OF GAS AND CONDENSED PHASE REACTIONS
OF HIGH TEMPERATURE CHEMISTRY AND PHYSICS
N64-28694

GASKET

ADHESIVES, SEALS, GASKETS, AND POLYMERIC MATERIALS
FOR AEROSPACE APPLICATIONS - BIBLIOGRAPHY
SB-63-77 N64-26823

GEAR

ANNOTATED BIBLIOGRAPHY ON GEARS, BEARINGS, AND
LUBRICANTS FOR AEROSPACE APPLICATIONS
SB-63-59 N64-24921

GEOMAGNETIC FIELD

ANNOTATED BIBLIOGRAPHY ON GEOMAGNETIC FIELD
REPT.-3-56-63-2 N64-23882

GEOMETRY

NUCLEAR FUSION DEVICES AND EXPERIMENTS USING
MAGNETIC MIRROR GEOMETRY - BIBLIOGRAPHY
CLM-BIB-5 N65-14971

GEOPHYSICS

SOVIET DEVELOPMENTS IN ASTROPHYSICS AND GEOPHYSICS
OF UPPER ATMOSPHERE
AID-P-64-19 N64-23330

LUNAR INFLUENCE ON ATMOSPHERIC AND GEOPHYSICAL
PHENOMENA - BIBLIOGRAPHY N64-26023

SOLAR AND GEOPHYSICAL ASPECTS OF COSMIC RADIATION
AND MAGNETOHYDRODYNAMICS - BIBLIOGRAPHY
AFCL-63-893 N64-26717

GLASS

CRYSTALLOGRAPHY, CRYSTAL GROWTH & CHEMISTRY,
GLASS, IONS FOR LASERS, AND ANNOTATED BIBLIOGRAPHY
ON LASER MATERIALS
NASA-CR-75 N64-30992

GRAVITATION THEORY

BIBLIOGRAPHY ON THEORY OF GRAVITATION
LAMS-3099 N64-30374

GUIDE VANE

BIBLIOGRAPHY ON HYDRODYNAMICS OF GUIDE VANE PIPE
AND DUCT FLOW
BIB-16 N65-13066

GUIDED MISSILE

BIBLIOGRAPHY ON BALLISTICS, GUIDED MISSILES, AND
WEAPONS
TDC-15963 N64-32590

H

HALL EFFECT

BIBLIOGRAPHY ON MAGNETORESISTANCE AND HALL EFFECT
IN METALS, SEMICONDUCTORS, AND ALLOYS
NAVWEPS-8191 N64-33240

HEAT TRANSFER

BIBLIOGRAPHY OF RUSSIAN WORK IN HEAT TRANSFER
A64-16280

COMPREHENSIVE BIBLIOGRAPHY ON HEAT TRANSFER
A64-17188

HEAT TRANSFER BIBLIOGRAPHY INCLUDING RADIATION,
CONDUCTION, CONVECTION, BOUNDARY LAYERS, MASS
TRANSFER, MHD AND THERMODYNAMIC PROPERTIES
A64-25494

BIBLIOGRAPHY ON HEAT AND MASS TRANSFER
A64-27286

BIBLIOGRAPHY ON BOILING HEAT TRANSFER
REPT.-19 N64-27346

HELIPORT

BIBLIOGRAPHY OF JAPANESE WORKS ON HEAT TRANSFER
A65-10193

REVIEW OF HEAT TRANSFER RESEARCH AND DEVELOPMENT
DURING YEAR PRECEDING MARCH 1964 INCLUDING
REFERENCE BIBLIOGRAPHY A65-11903

BIBLIOGRAPHY ON HEAT AND MASS TRANSFER IN CHEMICAL
AND PHYSICAL PROCESSES A65-12648

HELIPORT

BIBLIOGRAPHY ON DESIGN, CONSTRUCTION AND
MAINTENANCE OF AIRPORTS AND HELIPORTS N64-20810

HELIUM 3

ANNOTATED BIBLIOGRAPHY ON HELIUM 3
MLM-1190 N64-33718

HETEROPHORIA

EFFECTS OF ALCOHOL AND HYPOXIA ON HETEROPHORIAS -
REVIEW OF EXPERIMENTAL STUDIES
AD-433129 N64-17924

HIBERNATION

BIBLIOGRAPHY ON NATURAL MAMMALIAN HIBERNATION
AAL-TDR-63-34 N64-31936

HIGH ENERGY PROPELLANT

BIBLIOGRAPHY - HIGH ENERGY PROPELLANTS
NASA-SP-7002 N64-21785

HIGH TEMPERATURE ALLOY

ANNOTATED BIBLIOGRAPHY ON HIGH TEMPERATURE
SUPERALLOYS AND PROTECTIVE COATINGS
PDC-SEARCH-63-050 N64-32409

HIGH TEMPERATURE GAS

HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF GASES
AND GAS-CONDENSED PHASE REACTIONS - BIBLIOGRAPHY
REPT.-11 N64-19811

HIGH TEMPERATURE MATERIAL

BIBLIOGRAPHY ON LIGHTWEIGHT LOW POWER NUCLEAR
ROCKETS A64-25981

HIGH TEMPERATURE RESEARCH

BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF MATERIALS IN CONDENSED STATE
N64-19810

BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF MATERIALS IN CONDENSED STATE
N64-26900

BIBLIOGRAPHY OF GAS AND CONDENSED PHASE REACTIONS
OF HIGH TEMPERATURE CHEMISTRY AND PHYSICS
N64-28694

HIGH VACUUM

ANNOTATED BIBLIOGRAPHY ON HIGH VACUUM LIQUID
METAL DISTILLATION
IS-799 N64-26029

HOLMIUM

BIBLIOGRAPHY ON HOLMIUM
UCRL-7919 N64-29655

HORMONE

DYNAMIC RESPONSE IN THERMOREGULATION, HORMONAL,
CARDIOVASCULAR, AND BEHAVIORAL SYSTEM
NASA-CR-141 N65-13546

HUMAN BEHAVIOR

DYNAMIC RESPONSE IN THERMOREGULATION, HORMONAL,
CARDIOVASCULAR, AND BEHAVIORAL SYSTEM
NASA-CR-141 N65-13546

HUMAN ENGINEERING

PERCEPTUAL-MOTOR SKILLS - BIBLIOGRAPHY
A64-80708

BIBLIOGRAPHY OF HUMAN FACTORS ENGINEERING - SYSTEM
SAFETY, MAINTAINABILITY, PERSONNEL SUBSYSTEM, LIFE
SCIENCES, QUALITY CONTROL, AND RELIABILITY
RH-3398B N64-18490

BIBLIOGRAPHY ON HUMAN FACTOR ENGINEERING
RH-3398-E N64-27351

SUBJECT INDEX

BIBLIOGRAPHY ON HUMAN ENGINEERING
ONR-ACR-86 N64-29676

HUMAN ENGINEERING - ANNOTATED BIBLIOGRAPHY
N65-13955

HUMAN FACTOR

HUMAN FACTORS REFERENCE WORKS INCLUDING BOOKS,
BIBLIOGRAPHIES, REPORTS AND JOURNALS
A64-22078

BIBLIOGRAPHY OF HUMAN FACTORS ENGINEERING - SYSTEM
SAFETY, MAINTAINABILITY, PERSONNEL SUBSYSTEM, LIFE
SCIENCES, QUALITY CONTROL, AND RELIABILITY
RH-3398B N64-18490

BIBLIOGRAPHY ON HUMAN FACTOR ENGINEERING
RH-3398-E N64-27351

ANNOTATED BIBLIOGRAPHY ON HUMAN SCIENCES IN
INDUSTRY - ERGONOMICS N64-28104

HUMAN PERFORMANCE

MOTOR SKILLS BIBLIOGRAPHY A64-81138

BIBLIOGRAPHY ON MAINTENANCE PERSONNEL PERFORMANCE
MEASUREMENT
AMRL-MEMO-P-45 N64-30500

BIBLIOGRAPHY ON HUMAN PERFORMANCE IN TRACKING
SYSTEMS
CAL-131 N64-32606

HYDRODYNAMICS

BIBLIOGRAPHY ON HYDRODYNAMICS OF GUIDE VANE PIPE
AND DUCT FLOW
BIB-16 N65-13066

HYDROGEN

ANNOTATED BIBLIOGRAPHY ON ORTHO AND PARA HYDROGEN
AND CONVERSIONS
APL-TDR-64-81 N64-33303

HYPOXIA

EFFECTS OF ALCOHOL AND HYPOXIA ON HETEROPHORIAS -
REVIEW OF EXPERIMENTAL STUDIES
AD-433129 N64-17924

I

ICE

BIBLIOGRAPHY ON SNOW, ICE, AND PERMAFROST
CRREL-12 N64-29866

ANNOTATED BIBLIOGRAPHY ON SNOW, ICE, & PERMAFROST
CRREL-12, VOL. XVIII N64-32521

ICE FORMATION

PREVENTION AND ACCUMULATION OF ICE AND SNOW
FORMATION ON OUTSIDE SURFACES - BIBLIOGRAPHY
TN-541 N65-11193

IMAGE CONVERTER

OPTICAL IMAGE CONVERTERS - BIBLIOGRAPHY
SB-64-5 N64-20498

IMPACT

BIOMEDICAL RESEARCH IN ACCELERATION, IMPACT,
WEIGHTLESSNESS, VIBRATION, AND EMERGENCY ESCAPE
AND RESTRAINT SYSTEM - BIBLIOGRAPHY
CARI-63-30 N64-22711

INDUSTRY

ANNOTATED BIBLIOGRAPHY ON HUMAN SCIENCES IN
INDUSTRY - ERGONOMICS N64-28104

BIBLIOGRAPHY ON CREATIVITY, INNOVATION, AND
INVENTION FOR INDUSTRY N64-28451

ANNOTATED BIBLIOGRAPHY OF RADIOISOTOPES IN WORLD
INDUSTRY
TID-6613, SUPPL. 5 N64-29779

INFORMATION

LIQUID ROCKET ENGINE COMBUSTION PROCESSES -
LITERATURE SEARCH MECHANICS
NASA-CR-60041 N65-14533

INFORMATION RETRIEVAL
BIBLIOGRAPHY OF BIBLIOGRAPHIES IN INFORMATION
RETRIEVAL SYSTEM
SB-64-7 N64-20533

INSTABILITY
BIBLIOGRAPHY ON MAGNETIC DIFFUSION & DRIFT
INSTABILITIES OF PLASMAS
MATT-285 N64-28421

INTERNATIONAL GEOPHYSICAL YEAR /IGY/
BIBLIOGRAPHY OF U.S.S.R. CONTRIBUTIONS TO
INTERNATIONAL GEOPHYSICAL YEAR /IGY/ WORLD
DATA CENTER BI
NASA-TT-F-92 N65-13964

INTERPLANETARY MAGNETIC FIELD
BIBLIOGRAPHY OF INTERPLANETARY MAGNETIC FIELD
OBSERVATIONS
LR-17860 N64-21485

INTERPLANETARY SPACE
ANNOTATED BIBLIOGRAPHY ON EXTRATERRESTRIAL MATTER
IN INTERPLANETARY SPACE
REPT. 9990-6649-KU-000 N64-20475

IONIZING RADIATION
IONIZING RADIATION EFFECTS ON PERFORMANCE
CAPABILITIES OF ASTRONAUTS - ANNOTATED
BIBLIOGRAPHY
SRB-63-13 N64-23365

IONOSPHERE
BIBLIOGRAPHY ON IONOSPHERE AND UPPER ATMOSPHERE
B-4 N64-27521

IRON ALLOY
ANNOTATED BIBLIOGRAPHY - FABRICATION OF IRON,
NICKEL, NICKEL-IRON OR PERMALLOY FILM BY THERMAL
DECOMPOSITION OF CARBONYLS OR OTHER METHODS
SP-63-62 N64-21165

J

JAPAN
BIBLIOGRAPHY OF AEROSPACE MEDICINE IN JAPAN
A64-80166

JET FLOW
BIBLIOGRAPHY ON AEROSONICS - AERODYNAMIC SOUND AND
FLUID DYNAMICS OF JET FLOW
REPT.-64-20 N64-25207

JOINT
PRESSURE DROP IN FLEXIBLE METAL HOSES, BELLWS AND
GIMBAL JOINTS - ANNOTATED BIBLIOGRAPHY
NASA-CR-56540 N64-24109

L

LAMINAR FLOW
DELAYING TRANSITION FROM LAMINAR TO TURBULENT
FLOW - BIBLIOGRAPHY
AD-427728 N64-22332

LASER
CRYSTALLOGRAPHY, CRYSTAL GROWTH & CHEMISTRY,
GLASS, IONS FOR LASERS, AND ANNOTATED BIBLIOGRAPHY
ON LASER MATERIALS
NASA-CR-75 N64-30992

LAUNCH VEHICLE
MATERIALS RESEARCH IN LAUNCH VEHICLE PROGRAMS -
BIBLIOGRAPHY
NASA-TM-X-53006 N64-20593

LAUNCHING FACILITY
ANNOTATED BIBLIOGRAPHY ON SILO AND SEA LAUNCH
DYNAMICS
SB-63-67 N64-20896

LIFE
ANNOTATED BIBLIOGRAPHY OF RADIOISOTOPE & RADIATION
EFFECTS ON LIFE PROCESSES
TID-3098/INDEX/ N64-19236

LIFE SCIENCE
BIBLIOGRAPHY ON COMPUTERS IN LIFE SCIENCES
A64-80210

LIFE SUPPORT SYSTEM
LIFE SUPPORT SYSTEMS - ANNOTATED BIBLIOGRAPHY
AID-P-64-33 N64-24100

ANNOTATED BIBLIOGRAPHY ON LIFE SUPPORT SYSTEMS -
SPACE MEDICINE AND BIOLOGY, AND PHYSIOLOGY
ATD-P-64-52 N64-32355

ANNOTATED BIBLIOGRAPHY ON LIFE SUPPORT SYSTEMS -
SPACE MEDICINE AND BIOLOGY, AND PHYSIOLOGY
ATD-P-64-53 N64-32356

LIQUID METAL
ANNOTATED BIBLIOGRAPHY ON HIGH VACUUM LIQUID
METAL DISTILLATION
IS-799 N64-26029

ANNOTATED BIBLIOGRAPHY ON TECHNOLOGY OF LIQUID
METALS - MERCURY, POTASSIUM, SODIUM, AND SODIUM-
POTASSIUM ALLOY
NASA-CR-59028 N64-33194

LIQUID PROPELLANT ROCKET ENGINE
LIQUID ROCKET ENGINE COMBUSTION PROCESSES -
LITERATURE SEARCH MECHANICS
NASA-CR-60041 N65-14533

LOADING
BIBLIOGRAPHY ON DYNAMIC LOADING
SB-63-53 N64-20532

LUBRICANT
ANNOTATED BIBLIOGRAPHY ON GEARS, BEARINGS, AND
LUBRICANTS FOR AEROSPACE APPLICATIONS
SB-63-59 N64-24921

LUNAR EFFECT
LUNAR INFLUENCE ON ATMOSPHERIC AND GEOPHYSICAL
PHENOMENA - BIBLIOGRAPHY N64-26023

LUNAR SURFACE
ANNOTATED BIBLIOGRAPHY OF LUNAR SURFACE STUDIES
NASA-SP-7003 N64-24244

M

MAGNESIUM ALLOY
ANNOTATED BIBLIOGRAPHY ON FUSION WELDING OF ALLOYS
OF MAGNESIUM WITH LITHIUM AND THORIUM
SB-63-52 N64-23881

MAGNETIC FIELD
MAGNETIC FIELD PRODUCTION - PULSED AND CONTINUOUS
COIL STRESSES, SUPERCONDUCTIVITY, PLASMA AND
FUSION PHYSICS, AND PARTICLE PHYSICS
ATD-P-64-46 N64-26298

MAGNETIC MIRROR
NUCLEAR FUSION DEVICES AND EXPERIMENTS USING
MAGNETIC MIRROR GEOMETRY - BIBLIOGRAPHY
CLM-BIB-5 N65-14971

MAGNETIC PROPERTY
ANNOTATED BIBLIOGRAPHY ON NONMAGNETIC MATERIALS
FOR USE IN SPACECRAFT N64-28211

MAGNETOHYDRODYNAMICS
SOLAR AND GEOPHYSICAL ASPECTS OF COSMIC RADIATION
AND MAGNETOHYDRODYNAMICS - BIBLIOGRAPHY
AFCRL-63-893 N64-26717

MAGNETORESISTANCE
BIBLIOGRAPHY ON MAGNETORESISTANCE AND HALL EFFECT
IN METALS, SEMICONDUCTORS, AND ALLOYS
NAVWEPS-8191 N64-33240

MAINTENANCE
BIBLIOGRAPHY ON MAINTENANCE PERSONNEL PERFORMANCE
MEASUREMENT
AMRL-MEMO-P-45 N64-30500

MAMMAL
BIBLIOGRAPHY ON NATURAL MAMMALIAN HIBERNATION
AAL-TDR-63-34 N64-31936

MAN
BIBLIOGRAPHY - RADIATION EFFECT ON ANIMALS, MAN,
AND PLANTS
SB-62-60 N64-20517

- MANAGEMENT PLANNING**
 ANNOTATED BIBLIOGRAPHY ON LONG RANGE PLANNING AND TECHNOLOGICAL FORECASTING
 SRB-63-12 N64-22200
- MANNED ORBITAL LABORATORY /MOL/**
 NATURAL ENVIRONMENT OF MANNED ORBITING LABORATORY
 AFCRL-64-845 N65-14044
- MANNED ORBITAL SPACE STATION /MOSS/**
 BIBLIOGRAPHY ON MANNED ORBITAL SPACE STATIONS INCLUDING COMPONENTS, STRUCTURAL MATERIALS, POWER SUPPLY, AND LIFE SUPPORT SYSTEMS
 R63SD65 N64-21677
- MANUAL CONTROL**
 MANUAL CONTROL METHODOLOGY - STUDY WITH ANNOTATED BIBLIOGRAPHY
 NASA-CR-125 N65-11019
- MASS TRANSFER**
 HEAT TRANSFER BIBLIOGRAPHY INCLUDING RADIATION, CONDUCTION, CONVECTION, BOUNDARY LAYERS, MASS TRANSFER, MHD AND THERMODYNAMIC PROPERTIES
 A64-25494
- BIBLIOGRAPHY ON HEAT AND MASS TRANSFER
 A64-27286
- BIBLIOGRAPHY ON HEAT AND MASS TRANSFER IN CHEMICAL AND PHYSICAL PROCESSES
 A65-12648
- MATERIALS SCIENCE**
 MATERIALS RESEARCH IN LAUNCH VEHICLE PROGRAMS - BIBLIOGRAPHY
 NASA-TM-X-53006 N64-20593
- BIBLIOGRAPHY OF WORLDWIDE REFERENCES ON THEORY AND TECHNOLOGY OF SINTERING FROM 1958 TO 1963
 A65-10557
- BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF MATERIALS IN CONDENSED STATE
 N65-11921
- MATHEMATICAL MODEL**
 BIBLIOGRAPHY OF ELECTRONIC EQUIPMENT RELIABILITY AND FAILURE SYSTEMS, AND MATHEMATICAL MODELS
 UCRL-12040 N65-15065
- MATHEMATICS /GEN/**
 MATHEMATICAL PROGRAMMING - BIBLIOGRAPHY
 ORC-64-6/RN/ N64-23274
- MECHANICAL PROPERTY**
 RADIATION EFFECT ON MECHANICAL PROPERTIES OF POLYMERS - BIBLIOGRAPHY
 SC-R-64-124 N64-19241
- BIBLIOGRAPHY ON GROUPS IV, V, AND VI TRANSITION METALS - PREPARATION METHODS, CRYSTAL STRUCTURE, PHASE TRANSITIONS, AND PHYSICAL, MECHANICAL, AND TRANSPORT PROPERTIES
 ORNL-RMIC-3 N64-31466
- MEDICINE /GEN/**
 COMPUTER APPLICATIONS IN MEDICINE AND BIOLOGICAL SCIENCES - BIBLIOGRAPHY
 SP-1025/001/00 N64-32324
- MERCURY /METAL/**
 ANNOTATED BIBLIOGRAPHY ON TECHNOLOGY OF LIQUID METALS - MERCURY, POTASSIUM, SODIUM, AND SODIUM-POTASSIUM ALLOY
 NASA-CR-59028 N64-33194
- METAL**
 ANNOTATED BIBLIOGRAPHY ON GROWTH OF METAL AND METALLIC OXIDE WHISKERS
 SB-63-68 N64-26714
- METAL CUTTING**
 METAL CUTTING AND REMOVAL - BIBLIOGRAPHY
 REPT.-22 N65-14963
- METAL FILM**
 ANNOTATED BIBLIOGRAPHY - FABRICATION OF IRON, NICKEL, NICKEL-IRON OR PERMALLOY FILM BY THERMAL DECOMPOSITION OF CARBONYLS OR OTHER METHODS
 SP-63-62 N64-21165
- METAL OXIDE**
 ANNOTATED BIBLIOGRAPHY ON GROWTH OF METAL AND METALLIC OXIDE WHISKERS
 SB-63-68 N64-26714
- METEOROLOGICAL SATELLITE**
 METEOROLOGICAL SATELLITE BIBLIOGRAPHY
 N64-20676
- METEOROLOGY**
 METEOROLOGY AND CLIMATOLOGY - ANNOTATED BIBLIOGRAPHY
 AID-P-64-37 N64-23272
- SOVIET METEOROLOGY AND CLIMATOLOGY ABSTRACTS
 ATO-P-64-55 N65-10046
- MICROMINIATURIZATION**
 PACKAGING AND INTERCONNECTIONS FOR MINIATURIZED ELECTRONIC SYSTEMS - BIBLIOGRAPHY
 SB-63-51 N64-26821
- MICROMINIATURIZED ELECTRONIC EQUIPMENT**
 MICROMINIATURIZATION OF ELECTRONIC EQUIPMENT - ANNOTATED BIBLIOGRAPHY
 SB-62-67 N64-23883
- MICROORGANISM**
 EFFECT OF MICROORGANISMS ON NATURAL AND SYNTHETIC RUBBER - BIBLIOGRAPHY
 PDL-50015 N64-26322
- CHEMICAL AND RADIATION STERILIZING AGENTS - BIBLIOGRAPHY OF EFFECTS ON MICROORGANISMS
 NASA-CR-58123 N64-26372
- MONTE CARLO METHOD**
 BIBLIOGRAPHY ON MONTE CARLO METHODS
 UCRL-7823 N64-30650
- N**
- NASA PROGRAM**
 SELECTED LISTING OF NASA SCIENTIFIC AND TECHNICAL REPORTS FOR 1963, INCLUDING ABSTRACTS AND SUBJECT INDEX
 NASA-SP-7005 N64-19889
- NEUTRON FLUX**
 ANNOTATED BIBLIOGRAPHY ON NEUTRON FLUX MEASUREMENT
 SRB-63-7 N64-22219
- NICKEL ALLOY**
 ANNOTATED BIBLIOGRAPHY - FABRICATION OF IRON, NICKEL, NICKEL-IRON OR PERMALLOY FILM BY THERMAL DECOMPOSITION OF CARBONYLS OR OTHER METHODS
 SP-63-62 N64-21165
- NOBLE METAL**
 BIBLIOGRAPHY - RADIATION EFFECTS ON NOBLE METALS
 UCRL-7810 N64-28739
- NOCTILUCENT CLOUD**
 BIBLIOGRAPHY ON NOCTILUCENT AND NACREOUS CLOUDS, CIRRIIFORM CLOUDS, AND CONDENSATION TRAILS
 ERDA-181 N64-32034
- NUCLEAR EXPLOSION**
 PEACEFUL USES FOR NUCLEAR EXPLOSIVES - ANNOTATED BIBLIOGRAPHY
 TID-3522/REV. 7/ N64-19852
- ANNOTATED BIBLIOGRAPHY ON USE OF NUCLEAR EXPLOSIONS FOR PEACEFUL PURPOSES
 N64-20716
- BIBLIOGRAPHY ON BLAST AND SHOCK WAVES MAINLY FROM NUCLEAR REACTIONS
 TDC-30050-S1 N64-32017
- NUCLEAR FUSION**
 NUCLEAR FUSION DEVICES AND EXPERIMENTS USING MAGNETIC MIRROR GEOMETRY - BIBLIOGRAPHY
 CLM-BIB-5 N65-14971

NUCLEAR PHYSICS
BIBLIOGRAPHY ON THEORETICAL PHYSICS AND NUCLEAR
STRUCTURE N64-24395

NUCLEAR ROCKET
BIBLIOGRAPHY ON LIGHTWEIGHT LOW POWER NUCLEAR
ROCKETS A64-25981

NUCLEAR STRUCTURE
BIBLIOGRAPHY ON THEORETICAL PHYSICS AND NUCLEAR
STRUCTURE N64-24395

NYSTAGMUS
ANNOTATED BIBLIOGRAPHY OF FATIGUE, MALINGERING,
NYSTAGMUS, DRUGS, AND FORENSIC SCIENCE
AM-64-16 N65-15308

O

OCULAR CONVERGENCE
EFFECTS OF ALCOHOL AND HYPOXIA ON HETEROPHORIAS -
REVIEW OF EXPERIMENTAL STUDIES
AD-433129 N64-17924

OPERATIONS RESEARCH
BIBLIOGRAPHY ON OPERATIONS RESEARCH & GAME THEORY
TDC-36938 N64-32591

OPHTHALMOLOGY
EFFECTS OF ALCOHOL AND HYPOXIA ON HETEROPHORIAS -
REVIEW OF EXPERIMENTAL STUDIES
AD-433129 N64-17924

OPTICAL IMAGE
OPTICAL IMAGE CONVERTERS - BIBLIOGRAPHY
SB-64-5 N64-20498

ORGANIC MATERIAL
BIBLIOGRAPHY OF RADIATION EFFECTS ON LIVING
ORGANIC MATERIAL
SB-62-60, VOL. II N64-25511

ORGANIC SEMICONDUCTORS - CONDUCTIVITY AND
SEMICONDUCTIVITY, PHOTO CONDUCTIVITY, EXCITED
STATES, AND DIELECTRIC EFFECTS
NASA-CR-59799 N65-12837

ORTHO-PARA CONVERSION
ANNOTATED BIBLIOGRAPHY ON ORTHO AND PARA HYDROGEN
AND CONVERSIONS
APL-TDR-64-81 N64-33303

OSCILLATION
BIBLIOGRAPHY ON WIND-INDUCED OSCILLATIONS OF
SATURN BOOSTER IN VERTICAL LAUNCH POSITION
NASA-CR-59329 N64-33769

P

PENETRATION
BALLISTIC MISSILES PENETRATION AIDS - BIBLIOGRAPHY
B-07-64-3 N65-10974

PERCEPTION
PERCEPTUAL-MOTOR SKILLS - BIBLIOGRAPHY
A64-80708

PERCEPTION BIBLIOGRAPHY WITH REFERENCES TO VISUAL,
AUDITORY, TIME, GUSTATORY, AND TACTILE PERCEPTION
A64-80710

BIBLIOGRAPHY OF AUDITORY AND VISUAL PERCEPTION
A64-81149

PERMALLOY
ANNOTATED BIBLIOGRAPHY - FABRICATION OF IRON,
NICKEL, NICKEL-IRON OR PERMALLOY FILM BY THERMAL
DECOMPOSITION OF CARBONYLS OR OTHER METHODS
SP-63-62 N64-21165

PHOTOCHEMICAL REACTION
ANNOTATED BIBLIOGRAPHY ON DYE SENSITIZED
PHOTOREACTIONS - SILVER HALIDE, FREE RADICAL, AND
POLYMERIZATION SENSITIZERS
AL-TDR-64-130, PT. II, VOL. I N64-32214

PHYSICAL PROPERTY
ANNOTATED BIBLIOGRAPHY ON SYNTHESIS AND PHYSICAL
PROPERTIES OF ALUMINUM HYDRIDE AND RELATED

COMPOUNDS
TDR-269/4210-10/-4 N64-21026

BIBLIOGRAPHY ON GROUPS IV, V, AND VI TRANSITION
METALS - PREPARATION METHODS, CRYSTAL STRUCTURE,
PHASE TRANSITIONS, AND PHYSICAL, MECHANICAL, AND
TRANSPORT PROPERTIES
ORNL-RMIC-3 N64-31466

PHYSICS /GEN/
BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF MATERIALS IN CONDENSED STATE
N64-26900

BIBLIOGRAPHY OF GAS AND CONDENSED PHASE REACTIONS
OF HIGH TEMPERATURE CHEMISTRY AND PHYSICS
N64-28694

BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF MATERIALS IN CONDENSED STATE
N65-11921

PHYSIOLOGY
ANNOTATED BIBLIOGRAPHY ON LIFE SUPPORT SYSTEMS -
SPACE MEDICINE AND BIOLOGY, AND PHYSIOLOGY
ATD-P-64-52 N64-32355

ANNOTATED BIBLIOGRAPHY ON LIFE SUPPORT SYSTEMS -
SPACE MEDICINE AND BIOLOGY, AND PHYSIOLOGY
ATD-P-64-53 N64-32356

ANNOTATED BIBLIOGRAPHY - HUMAN SCIENCES IN
INDUSTRY N65-13117

PIPEFLOW
BIBLIOGRAPHY ON HYDRODYNAMICS OF GUIDE VANE PIPE
AND DUCT FLOW
BIB-16 N65-13066

PLASMA SHEATH
ANNOTATED BIBLIOGRAPHY ON RADIO FREQUENCY
TRANSMISSION THROUGH PLASMA SHEATH OF REENTRY
VEHICLES
SB-64-10 N64-23884

PLASMA STABILITY
BIBLIOGRAPHY ON MAGNETIC DIFFUSION & DRIFT
INSTABILITIES OF PLASMAS
MATT-285 N64-28421

PLASTIC MATERIAL
PLASTIC MATERIALS - CONFERENCE
PLASTEC-14 N64-24333

INDEXED BIBLIOGRAPHY OF CONFERENCE PAPERS ON
PLASTIC MATERIAL
PLASTEC-17 N64-33137

POLYMER
RADIATION EFFECT ON MECHANICAL PROPERTIES OF
POLYMERS - BIBLIOGRAPHY
SC-R-64-124 N64-19241

POLYMERIZATION
ANNOTATED BIBLIOGRAPHY ON DYE SENSITIZED
PHOTOREACTIONS - SILVER HALIDE, FREE RADICAL, AND
POLYMERIZATION SENSITIZERS
AL-TDR-64-130, PT. II, VOL. I N64-32214

POLYURETHANE
ANNOTATED BIBLIOGRAPHY ON POLYURETHANE PROTECTIVE
COATINGS
PDL-50915 N64-30758

POTASSIUM
ANNOTATED BIBLIOGRAPHY ON TECHNOLOGY OF LIQUID
METALS - MERCURY, POTASSIUM, SODIUM, AND SODIUM-
POTASSIUM ALLOY
NASA-CR-59028 N64-33194

POTASSIUM ALLOY
ANNOTATED BIBLIOGRAPHY ON TECHNOLOGY OF LIQUID
METALS - MERCURY, POTASSIUM, SODIUM, AND SODIUM-
POTASSIUM ALLOY
NASA-CR-59028 N64-33194

POWDER METALLURGY
BIBLIOGRAPHY OF WORLDWIDE REFERENCES ON THEORY AND
TECHNOLOGY OF SINTERING FROM 1958 TO 1963

A65-10557

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PRESSURE DROP IN FLEXIBLE METAL HOSES, BELLOWS AND
GIMBAL JOINTS - ANNOTATED BIBLIOGRAPHY
NASA-CR-56540 N64-24109

PRINTED CIRCUIT
ANNOTATED BIBLIOGRAPHY ON PRINTED CIRCUITS AND
WELDED ELECTRONIC MODULES
REPT.-3-35-64-2 N64-21148

PROFICIENCY MEASUREMENT
BIBLIOGRAPHY ON PROFICIENCY MEASUREMENT FOR
TRAINING QUALITY CONTROL
AD-448362 N64-32813

PROPELLANT OXIDIZER
BIBLIOGRAPHY OF FLUORINE AND FLOX OXIDIZERS FOR
SPACECRAFT PROPULSION SYSTEMS
NASA-TM-X-53149 N65-14430

PROTECTIVE COATING
ANNOTATED BIBLIOGRAPHY ON POLYURETHANE PROTECTIVE
COATINGS
PDL-50915 N64-30758

ANNOTATED BIBLIOGRAPHY ON HIGH TEMPERATURE
SUPERALLOYS AND PROTECTIVE COATINGS
PDC-SEARCH-63-050 N64-32409

PSYCHIATRY
BIOLOGICAL CONTROL SYSTEMS - VESTIBULAR EFFECT ON
SPACE ORIENTATION OF MAN
NASA-CR-59441 N65-10363

PSYCHOLOGY /GEN/
MOTOR SKILLS BIBLIOGRAPHY
A64-81138

BIBLIOGRAPHY OF AUDITORY AND VISUAL PERCEPTION
A64-81149

BIBLIOGRAPHY ON ENGINEERING PSYCHOLOGY, TRAINING
PSYCHOLOGY, ENVIRONMENTAL STRESS, SIMULATION
TECHNIQUES, AND PHYSICAL ANTHROPOLOGY
AD-600804 N64-22515

PSYCHOMOTOR PERFORMANCE
PERCEPTUAL-MOTOR SKILLS - BIBLIOGRAPHY
A64-80708

PULSE CODE MODULATION /PCM/
ANNOTATED BIBLIOGRAPHY ON PULSE CODE MODULATED
TELEMETRY
SB-64-6 N64-20897

Q

QUALITY CONTROL
BIBLIOGRAPHY ON PROFICIENCY MEASUREMENT FOR
TRAINING QUALITY CONTROL
AD-448362 N64-32813

R

RADAR
ANNOTATED BIBLIOGRAPHY ON RADAR SIMULATION BY
ANALOG OR DIGITAL COMPUTER TECHNIQUES
SB-64-12 N64-32966

RADIATION EFFECT
ANNOTATED BIBLIOGRAPHY OF RADIOISOTOPE & RADIATION
EFFECTS ON LIFE PROCESSES
TID-3098/INDEX/ N64-19236

RADIATION EFFECT ON MECHANICAL PROPERTIES OF
POLYMERS - BIBLIOGRAPHY
SC-R-64-124 N64-19241

VAN ALLEN TRAPPED RADIATION BELTS & EFFECT OF
SPACE RADIATION ON SNAP REACTOR SYSTEMS -
BIBLIOGRAPHY
NAA-SR-7849 N64-20529

IONIZING RADIATION EFFECTS ON PERFORMANCE
CAPABILITIES OF ASTRONAUTS - ANNOTATED
BIBLIOGRAPHY
SR8-63-13 N64-23365

EFFECTS OF RADIATION AND HOT ATOMS ON SIMPLE
COMPOUNDS - BIBLIOGRAPHY
SB-63-37 N64-26820

BIBLIOGRAPHY - RADIATION EFFECTS ON NOBLE METALS
UCRL-7810 N64-28739

BIBLIOGRAPHY ON EFFECTS OF VAN ALLEN RADIATION
BELTS ON ELECTRONIC MATERIALS
PDC-SEARCH-63-003 N64-32057

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TID-3909 /SUPPL. 2/ N64-33138

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RADIATION AND RADIOISOTOPES EFFECTS ON BIOLOGICAL
SYSTEMS - ANNOTATED BIBLIOGRAPHY
TID-3098, BK. 1 N64-19035

ANNOTATED BIBLIOGRAPHY ON RADIATION EFFECTS ON
BIOLOGICAL SYSTEMS
TID-3098, BK. 2 N64-19036

BIBLIOGRAPHY - RADIATION EFFECT ON ANIMALS, MAN,
AND PLANTS
SB-62-60 N64-20517

BIBLIOGRAPHY OF RADIATION EFFECTS ON LIVING
ORGANIC MATERIAL
SB-62-60, VOL. II N64-25511

RADIATION PROTECTION
BIBLIOGRAPHY ON TRITIUM RADIATION PROTECTION
LAMS-2946 N64-18094

ANNOTATED BIBLIOGRAPHY ON PHYSICAL CHARACTERISTICS
OF THERMAL RADIATION AND RADIATION SOURCES, AND
PROTECTION AGAINST BIOLOGICAL EFFECTS
TDC-33500 N64-32018

RADIO COMMUNICATION
BIBLIOGRAPHY LISTING ON RADIO ENGINEERING, RADIO
PROPAGATION, ANTENNAS, COMMUNICATION EQUIPMENT AND
COMPONENTS
A64-26230

RADIO FREQUENCY
ANNOTATED BIBLIOGRAPHY ON RADIO FREQUENCY
TRANSMISSION THROUGH PLASMA SHEATH OF REENTRY
VEHICLES
SB-64-10 N64-23884

RADIOACTIVE ISOTOPE
RADIATION AND RADIOISOTOPES EFFECTS ON BIOLOGICAL
SYSTEMS - ANNOTATED BIBLIOGRAPHY
TID-3098, BK. 1 N64-19035

ANNOTATED BIBLIOGRAPHY OF RADIOISOTOPE & RADIATION
EFFECTS ON LIFE PROCESSES
TID-3098/INDEX/ N64-19236

ANNOTATED BIBLIOGRAPHY OF RADIOISOTOPES IN WORLD
INDUSTRY
TID-6613, SUPPL. 5 N64-29779

RADIOACTIVE MATERIAL
RADIOACTIVE MATERIAL HANDLING - BIBLIOGRAPHY
TID-3578 N64-30805

RADIOBIOLOGY
ANNOTATED BIBLIOGRAPHY ON RADIATION EFFECTS ON
BIOLOGICAL SYSTEMS
TID-3098, BK. 2 N64-19036

REACTION TIME
PERCEPTUAL-MOTOR SKILLS - BIBLIOGRAPHY
A64-80708

REACTOR FUEL
BIBLIOGRAPHY ON EFFECTS OF WATER VAPOR AND OTHER
GASES ON REACTOR FUEL ELEMENTS
UCRL-7836 N64-25864

REACTOR TECHNOLOGY
BIBLIOGRAPHY ON LIGHTWEIGHT LOW POWER NUCLEAR
ROCKETS
A64-25981

REDUNDANT SYSTEM
USE OF REDUNDANCY AS MEANS OF IMPROVING
RELIABILITY - BIBLIOGRAPHY

- SSD-TDR-63-375 N64-18012
- REENTRY CONDITION**
 ANNOTATED BIBLIOGRAPHY ON MATERIALS FOR REENTRY
 CONDITIONS AND RELATED COOLING SYSTEMS
 RR-TR-64-1 N64-21495
- REENTRY VEHICLE**
 ANNOTATED BIBLIOGRAPHY ON RADIO FREQUENCY
 TRANSMISSION THROUGH PLASMA SHEATH OF REENTRY
 VEHICLES
 SB-64-10 N64-23884
- REFRACTORY MATERIAL**
 ANNOTATED BIBLIOGRAPHY ON THERMODYNAMICS OF
 BERYLLIUM AND ITS REFRACTORY COMPOUNDS - OXIDES,
 CARBIDES, & NITRIDES
 SB-63-16 N64-20893
- RELIABILITY**
 USE OF REDUNDANCY AS MEANS OF IMPROVING
 RELIABILITY - BIBLIOGRAPHY
 SSD-TDR-63-375 N64-18012
- BIBLIOGRAPHY ON RELIABILITY N64-27220
- BIBLIOGRAPHY OF ELECTRONIC EQUIPMENT RELIABILITY
 AND FAILURE SYSTEMS, AND MATHEMATICAL MODELS
 UCRL-12040 N65-15065
- RESTRAINT**
 BIOMEDICAL RESEARCH IN ACCELERATION, IMPACT,
 WEIGHTLESSNESS, VIBRATION, AND EMERGENCY ESCAPE
 AND RESTRAINT SYSTEM - BIBLIOGRAPHY
 CARI-63-30 N64-22711
- REVOLUTION**
 ANNOTATED BIBLIOGRAPHY OF AERODYNAMIC
 CHARACTERISTICS OF BODIES OF REVOLUTION WITHOUT
 FINS
 SB-63-75 N64-27793
- RING**
 BIBLIOGRAPHY ON O RING SEAL APPLICATIONS - POWER
 TRANSMISSION, PROPULSION, FUEL, AND HYDRAULIC
 SYSTEMS
 AD-422417 N65-10388
- RING WING**
 BIBLIOGRAPHY ON AERODYNAMIC CHARACTERISTICS OF
 RING WINGS
 RSIC-285 N65-14220
- ROCK**
 BIBLIOGRAPHY ON ROCK DEFORMATION
 AFRL-64-713 N64-32113
- ROTATING SHAFT**
 EQUATIONS FOR SYNTHESIS OF FOUR-BAR LINKAGE
 FUNCTION GENERATORS FOR ROTATING SHAFT
 COORDINATION N65-12890
- RUBBER**
 EFFECT OF MICROORGANISMS ON NATURAL AND SYNTHETIC
 RUBBER - BIBLIOGRAPHY
 PDL-50015 N64-26322
- S**
- SATELLITE**
 ANNOTATED BIBLIOGRAPHY ON COMBINED EFFECTS OF
 SPACE ENVIRONMENTAL PARAMETERS UPON SATELLITE
 SYSTEMS AND COMPONENTS
 REPT.-3-35-64-3 N64-31117
- SATURN LAUNCH VEHICLE**
 BIBLIOGRAPHY ON WIND-INDUCED OSCILLATIONS OF
 SATURN BOOSTER IN VERTICAL LAUNCH POSITION
 NASA-CR-59329 N64-33769
- SCIENCE /GEN/**
 SELECTED LISTING OF NASA SCIENTIFIC AND TECHNICAL
 REPORTS FOR 1963, INCLUDING ABSTRACTS AND SUBJECT
 INDEX
 NASA-SP-7005 N64-19889
- BIBLIOGRAPHY ON ETHICAL AND SOCIAL PROBLEMS OF
 SCIENCE AND TECHNOLOGY
 LAMS-3028 N64-22060
- SEA LAUNCH**
 ANNOTATED BIBLIOGRAPHY ON SILO AND SEA LAUNCH
 DYNAMICS
 SB-63-67 N64-20896
- SEALANT**
 ADHESIVES, SEALS, GASKETS, AND POLYMERIC MATERIALS
 FOR AEROSPACE APPLICATIONS - BIBLIOGRAPHY
 SB-63-77 N64-26823
- SECONDARY INJECTION**
 SECONDARY INJECTION THRUST VECTOR CONTROL -
 BIBLIOGRAPHY
 HREC/LMSC-A033127 N64-21214
- SEMICONDUCTOR**
 BIBLIOGRAPHY ON MAGNETORESISTANCE AND HALL EFFECT
 IN METALS, SEMICONDUCTORS, AND ALLOYS
 NAVWEPS-8191 N64-33240
- ORGANIC SEMICONDUCTORS - CONDUCTIVITY AND
 SEMICONDUCTIVITY, PHOTO CONDUCTIVITY, EXCITED
 STATES, AND DIELECTRIC EFFECTS
 NASA-CR-59799 N65-12837
- SEQUENTIAL MACHINE**
 BIBLIOGRAPHY ON SEQUENTIAL MACHINES USING FORMAT
 OF DIRECT LISTING OF DECK OF PUNCHED CARDS
 A64-22421
- SHOCK**
 SHOCK AND VIBRATION IN SPACE ENVIRONMENT
 BIBLIOGRAPHY
 SB-63-24 N64-24920
- SHOCK TUNNEL**
 BIBLIOGRAPHY ON SHOCK TUBE APPLICATIONS IN
 CHEMISTRY AND PHYSICS
 MLM-1189 N64-30625
- BIBLIOGRAPHY ON SHOCK TUBES
 MLM-1189/SUPP/ N65-12428
- SHOCK WAVE**
 BIBLIOGRAPHY ON BLAST AND SHOCK WAVES MAINLY FROM
 NUCLEAR REACTIONS
 TDCK-30050-S1 N64-32017
- SILVER HALIDE**
 ANNOTATED BIBLIOGRAPHY ON DYE SENSITIZED
 PHOTOREACTIONS - SILVER HALIDE, FREE RADICAL, AND
 POLYMERIZATION SENSITIZERS
 AL-TDR-64-130, PT. II, VOL. I N64-32214
- SIMULATION**
 BIBLIOGRAPHY ON ENGINEERING PSYCHOLOGY, TRAINING
 PSYCHOLOGY, ENVIRONMENTAL STRESS, SIMULATION
 TECHNIQUES, AND PHYSICAL ANTHROPOLOGY
 AD-600804 N64-22515
- SINTERING**
 BIBLIOGRAPHY OF WORLDWIDE REFERENCES ON THEORY AND
 TECHNOLOGY OF SINTERING FROM 1958 TO 1963
 A65-10557
- SKY BRIGHTNESS**
 BIBLIOGRAPHY ON SKY BRIGHTNESS, LIGHT
 POLARIZATION, AND CORONA PHOTOMETRY DURING
 SOLAR ECLIPSES
 AID-8-64-20 N64-20468
- SLOTTED ANTENNA**
 SLOTTED ANTENNA STUDIES - BIBLIOGRAPHY
 SB-63-4 N64-20891
- SNOW**
 BIBLIOGRAPHY ON SNOW, ICE, AND PERMAFROST
 CRREL-12 N64-29866
- ANNOTATED BIBLIOGRAPHY ON SNOW, ICE, & PERMAFROST
 CRREL-12, VOL. XVIII N64-32521
- PREVENTION AND ACCUMULATION OF ICE AND SNOW
 FORMATION ON OUTSIDE SURFACES - BIBLIOGRAPHY
 TN-541 N65-11193
- SODIUM**
 ANNOTATED BIBLIOGRAPHY ON TECHNOLOGY OF LIQUID
 METALS - MERCURY, POTASSIUM, SODIUM, AND SODIUM-

- POTASSIUM ALLOY
NASA-CR-59028 N64-33194
- SODIUM ALLOY
ANNOTATED BIBLIOGRAPHY ON TECHNOLOGY OF LIQUID METALS - MERCURY, POTASSIUM, SODIUM, AND SODIUM-POTASSIUM ALLOY
NASA-CR-59028 N64-33194
- SOLAR ECLIPSE
BIBLIOGRAPHY ON SKY BRIGHTNESS, LIGHT POLARIZATION, AND CORONA PHOTOMETRY DURING SOLAR ECLIPSES
AID-B-64-20 N64-20468
- SOLAR FLARE
SOLAR FLARE FORECASTS & PREDICTION - BIBLIOGRAPHY
AID-P-63-43 N64-24140
- SOLAR RADIATION
BIBLIOGRAPHY OF SOLAR RADIATION AND UPPER ATMOSPHERIC PHENOMENA
AID-P-64-32 N64-24099
- SOLAR SYSTEM
SURVEY OF PAPERS ON SOLAR SYSTEM SCIENCE PUBLISHED FROM MISCELLANEOUS JOURNALS AND CORPORATION PUBLICATIONS IN 1962 A64-16495
- REVIEW OF PAPERS ON SOLAR SYSTEM SCIENCE PUBLISHED IN 1962 A64-16496
- ANNOTATED BIBLIOGRAPHY OF BIBLIOGRAPHIES ON SOLAR SYSTEM SCIENCE
P-2859 N64-20358
- SOLAR SYSTEM SCIENCE SURVEY OF LITERATURE PUBLISHED IN 1963 A65-13164
- SOLDERING
FLUXES AND THEIR USE IN SOLDERING ALUMINUM - BIBLIOGRAPHY
TID-3577 N64-18458
- SPACE ENVIRONMENT
SHOCK AND VIBRATION IN SPACE ENVIRONMENT BIBLIOGRAPHY
SB-63-24 N64-24920
- COSMIC RADIATION AND NEAR EARTH SPACE ENVIRONMENT - BIBLIOGRAPHY
SB-63-71 N64-26822
- ANNOTATED BIBLIOGRAPHY ON COMBINED EFFECTS OF SPACE ENVIRONMENTAL PARAMETERS UPON SATELLITE SYSTEMS AND COMPONENTS
REPT.-3-35-64-3 N64-31117
- SOVIET BIOSCIENCE IN SPACE - BIOASTRONAUTICS
AMD-TR-64-16 N65-15269
- SPACE ORIENTATION
BIOLOGICAL CONTROL SYSTEMS - VESTIBULAR EFFECT ON SPACE ORIENTATION OF MAN
NASA-CR-59441 N65-10363
- SPACE PROGRAM
ANNOTATED BIBLIOGRAPHY - USA AND USSR SPACE PROGRAM, ROCKETS, MISSILES, AND SPACE VEHICLES
N65-10410
- SPACE SCIENCE
ANNOTATED BIBLIOGRAPHY ON AEROSPACE SCIENCE AND TECHNOLOGY
NASA-CR-58761 N64-32991
- SOLAR SYSTEM SCIENCE SURVEY OF LITERATURE PUBLISHED IN 1963 A65-13164
- BIBLIOGRAPHY ON SPACE SCIENCES - ORBITS, TRACKING, TRAJECTORIES, TELEMETRY, INSTRUMENTATION, SUN, GEODESY, PLANETS, MOON, ASTRONOMY, AND LIFE SCIENCES N65-15357
- SPACE VEHICLE
AERODYNAMIC HEATING PARAMETER ASSOCIATED WITH SPACE VEHICLES - BIBLIOGRAPHY
SB-63-18 N64-19131
- TRACKING MISSILES AND SPACE VEHICLES - ANNOTATED BIBLIOGRAPHY
AID-P-64-36 N64-22289
- SPACE VEHICLE DATA LINK REQUIREMENTS - BIBLIOGRAPHY
SB-63-57 N64-23345
- SPACECRAFT PROPULSION
BIBLIOGRAPHY OF FLUORINE AND FLOX OXIDIZERS FOR SPACECRAFT PROPULSION SYSTEMS
NASA-TM-X-53149 N65-14430
- SPACECRAFT STRUCTURE
ANNOTATED BIBLIOGRAPHY ON NONMAGNETIC MATERIALS FOR USE IN SPACECRAFT N64-28211
- SPECIFIC HEAT
SPECIFIC HEAT, THERMAL EXPANSION, AND THERMAL CONDUCTIVITY DATA FOR STRUCTURAL MATERIALS AT HIGH TEMPERATURES - ANNOTATED BIBLIOGRAPHY
RSTC-202 N65-15174
- STAGE SEPARATION
ANNOTATED BIBLIOGRAPHY OF STAGE SEPARATION AND EJECTION SYSTEMS OF FLIGHT VEHICLES
SB-64-14 N64-29314
- STATISTICS
BIBLIOGRAPHY ON STATISTICAL WEATHER FORECASTING
NWRP-41-1263-087 N65-15307
- STERILIZATION
CHEMICAL AND RADIATION STERILIZING AGENTS - BIBLIOGRAPHY OF EFFECTS ON MICROORGANISMS
NASA-CR-58123 N64-26372
- STRUCTURAL ENGINEERING
DIGITAL COMPUTER APPLICATIONS IN STRUCTURAL ENGINEERING - BIBLIOGRAPHY N64-20613
- SUPERALLOY
ANNOTATED BIBLIOGRAPHY ON HIGH TEMPERATURE SUPERALLOYS AND PROTECTIVE COATINGS
PDC-SEARCH-63-050 N64-32409
- SUPERCONDUCTIVITY
OPTICAL IMAGE CONVERTERS - BIBLIOGRAPHY
SB-64-5 N64-20498
- BIBLIOGRAPHY ON SUPERCONDUCTIVITY
SB-63-33 N64-20500
- MAGNETIC FIELD PRODUCTION - PULSED AND CONTINUOUS COIL STRESSES, SUPERCONDUCTIVITY, PLASMA AND FUSION PHYSICS, AND PARTICLE PHYSICS
ATD-P-64-46 N64-26298
- SURFACE COATING
CONVERSION COATINGS FOR ALUMINUM ALLOYS - ANNOTATED BIBLIOGRAPHY
NASA-CR-56317 N64-25766
- SYNTHETIC RUBBER
EFFECT OF MICROORGANISMS ON NATURAL AND SYNTHETIC RUBBER - BIBLIOGRAPHY
PDL-50015 N64-26322
- SYSTEM FOR NUCLEAR AUXILIARY POWER /SNAP/ PROGRAM
SYSTEM FOR NUCLEAR AUXILIARY POWER /SNAP/ PROGRAM FUELS USING ZIRCONIUM AND URANIUM SYSTEMS - BIBLIOGRAPHY
NAA-SR-9525, VOL. I N64-25866
- SYSTEMS DESIGN
ANNOTATED BIBLIOGRAPHY ON DIGITAL COMPUTER METHODS OF ELECTRICAL AND ELECTRONIC SYSTEMS DESIGN
SB-63-65 N64-20895
- SYSTEMS ENGINEERING
BIBLIOGRAPHY ON SYSTEMS ENGINEERING
SB-63-12 N64-20892
- TECHNOLOGY /GEN/
BIBLIOGRAPHY ON ETHICAL AND SOCIAL PROBLEMS OF SCIENCE AND TECHNOLOGY
LAMS-3028 N64-22060

T

- TELEMETRY**
 ANNOTATED BIBLIOGRAPHY ON PULSE CODE MODULATED
 TELEMETRY
 SB-64-6 N64-20897
- THERMAL CONDUCTOR**
 REVIEW OF HEAT TRANSFER RESEARCH AND DEVELOPMENT
 DURING YEAR PRECEDING MARCH 1964 INCLUDING
 REFERENCE BIBLIOGRAPHY A65-11903
- THERMAL ENVIRONMENT**
 THERMAL ENVIRONMENT AND PROTECTION OF STRUCTURES
 BY ABLATIVE TECHNIQUES - ANNOTATED BIBLIOGRAPHY
 PIBAL-686 N64-33318
- THERMAL EXPANSION**
 SPECIFIC HEAT, THERMAL EXPANSION, AND THERMAL
 CONDUCTIVITY DATA FOR STRUCTURAL MATERIALS AT
 HIGH TEMPERATURES - ANNOTATED BIBLIOGRAPHY
 RSIC-202 N65-15174
- THERMAL PROTECTION**
 THERMAL ENVIRONMENT AND PROTECTION OF STRUCTURES
 BY ABLATIVE TECHNIQUES - ANNOTATED BIBLIOGRAPHY
 PIBAL-686 N64-33318
- THERMAL RADIATION**
 ANNOTATED BIBLIOGRAPHY ON PHYSICAL CHARACTERISTICS
 OF THERMAL RADIATION AND RADIATION SOURCES, AND
 PROTECTION AGAINST BIOLOGICAL EFFECTS
 TDCK-33500 N64-32018
- THERMODYNAMIC PROPERTY**
 HEAT TRANSFER BIBLIOGRAPHY INCLUDING RADIATION,
 CONDUCTION, CONVECTION, BOUNDARY LAYERS, MASS
 TRANSFER, MHD AND THERMODYNAMIC PROPERTIES
 A64-25494
- THERMODYNAMICS**
 BIBLIOGRAPHY ON HEAT AND MASS TRANSFER
 A64-27286
- ANNOTATED BIBLIOGRAPHY ON THERMODYNAMICS OF
 BERYLLIUM AND ITS REFRACTORY COMPOUNDS - OXIDES,
 CARBIDES, & NITRIDES
 SB-63-16 N64-20893
- BIBLIOGRAPHY ON HEAT AND MASS TRANSFER IN CHEMICAL
 AND PHYSICAL PROCESSES A65-12648
- THERMOPHYSICAL PROPERTY**
 BIBLIOGRAPHY OF THERMOPHYSICAL PROPERTIES OF ARGON
 NASA-CR-56793 N64-27835
- THERMOREGULATION**
 DYNAMIC RESPONSE IN THERMOREGULATION, HORMONAL,
 CARDIOVASCULAR, AND BEHAVIORAL SYSTEM
 NASA-CR-141 N65-13546
- THRUST VECTOR CONTROL**
 SECONDARY INJECTION THRUST VECTOR CONTROL -
 BIBLIOGRAPHY
 HREC/LMSC-A033127 N64-21214
- TIME DISCRIMINATION**
 PERCEPTION BIBLIOGRAPHY WITH REFERENCES TO VISUAL,
 AUDITORY, TIME, GUSTATORY, AND TACTILE PERCEPTION
 A64-80710
- TOXICITY**
 DETECTION TECHNIQUES AND ATMOSPHERIC DISPERSION
 OF TOXIC GASES AND AEROSOLS
 SB-63-39 N64-20531
- TRACKING**
 TRACKING MISSILES AND SPACE VEHICLES - ANNOTATED
 BIBLIOGRAPHY
 AID-P-64-36 N64-22289
- TRACKING SYSTEM**
 BIBLIOGRAPHY ON HUMAN PERFORMANCE IN TRACKING
 SYSTEMS
 CAL-131 N64-32606
- TRAINING**
 BIBLIOGRAPHY ON ENGINEERING PSYCHOLOGY, TRAINING
 PSYCHOLOGY, ENVIRONMENTAL STRESS, SIMULATION
 TECHNIQUES, AND PHYSICAL ANTHROPOLOGY
 AD-600804 N64-22515
- BIBLIOGRAPHY ON PROFICIENCY MEASUREMENT FOR
 TRAINING QUALITY CONTROL
 AD-448362 N64-32813
- TRANSITION ELEMENT**
 BIBLIOGRAPHY ON GROUPS IV, V, AND VI TRANSITION
 METALS - PREPARATION METHODS, CRYSTAL STRUCTURE,
 PHASE TRANSITIONS, AND PHYSICAL, MECHANICAL, AND
 TRANSPORT PROPERTIES
 ORNL-RMIC-3 N64-31466
- TRANSLATION**
 ANNOTATED BIBLIOGRAPHY OF FATIGUE, MALINGERING,
 NYSTAGMUS, DRUGS, AND FORENSIC SCIENCE
 AM-64-16 N65-15308
- TRANSPORT PROPERTY**
 BIBLIOGRAPHY ON GROUPS IV, V, AND VI TRANSITION
 METALS - PREPARATION METHODS, CRYSTAL STRUCTURE,
 PHASE TRANSITIONS, AND PHYSICAL, MECHANICAL, AND
 TRANSPORT PROPERTIES
 ORNL-RMIC-3 N64-31466
- REVIEW OF HEAT TRANSFER RESEARCH AND DEVELOPMENT
 DURING YEAR PRECEDING MARCH 1964 INCLUDING
 REFERENCE BIBLIOGRAPHY A65-11903
- TRANSVERSE VIBRATION**
 DAMPING TRANSVERSE VIBRATION OF LARGE MISSILES -
 BIBLIOGRAPHY
 RSIC-266 N65-11995
- TRAPPED RADIATION**
 VAN ALLEN TRAPPED RADIATION BELTS & EFFECT OF
 SPACE RADIATION ON SNAP REACTOR SYSTEMS -
 BIBLIOGRAPHY
 NAA-SR-7849 N64-20529
- TRITIUM**
 BIBLIOGRAPHY ON TRITIUM RADIATION PROTECTION
 LAMS-2946 N64-18094
- TURBULENT FLOW**
 DELAYING TRANSITION FROM LAMINAR TO TURBULENT
 FLOW - BIBLIOGRAPHY
 AD-427728 N64-22332
- U**
- U.S.S.R.**
 BIBLIOGRAPHY OF RUSSIAN WORK IN HEAT TRANSFER
 A64-16280
- SOVIET DEVELOPMENTS IN ASTROPHYSICS AND GEOPHYSICS
 OF UPPER ATMOSPHERE
 AID-P-64-19 N64-23330
- BIBLIOGRAPHY OF U.S.S.R. CONTRIBUTIONS TO
 INTERNATIONAL GEOPHYSICAL YEAR /IGY/ WORLD
 DATA CENTER 81
 NASA-TT-F-92 N65-13964
- U.S.S.R. SPACE PROGRAM**
 ANNOTATED BIBLIOGRAPHY - USA AND USSR SPACE
 PROGRAM, ROCKETS, MISSILES, AND SPACE VEHICLES
 N65-10410
- UPPER ATMOSPHERE**
 UPPER ATMOSPHERIC PHENOMENA - ABSTRACTS
 AID-P-64-30 N64-20469
- COMPILATION OF ABSTRACTS ON UPPER ATMOSPHERIC
 PHENOMENA
 AID-P-64-31 N64-20470
- SOVIET DEVELOPMENTS IN ASTROPHYSICS AND GEOPHYSICS
 OF UPPER ATMOSPHERE
 AID-P-64-19 N64-23330
- ABSTRACTS ON UPPER ATMOSPHERE FROM SOVIET
 LITERATURE
 AID-P-64-43 N64-23885
- BIBLIOGRAPHY OF SOLAR RADIATION AND UPPER
 ATMOSPHERIC PHENOMENA
 AID-P-64-32 N64-24099
- BIBLIOGRAPHY ON IONOSPHERE AND UPPER ATMOSPHERE
 B-4 N64-27521

URANIUM

ANNOTATED BIBLIOGRAPHY ON UPPER ATMOSPHERIC
PHENOMENA
AID-P-64-15 N64-32353

BIBLIOGRAPHY ON UPPER ATMOSPHERE PHENOMENA
ATD-P-64-51 N64-32354

CHARGED PARTICLES IN UPPER ATMOSPHERE - ANNOTATED
BIBLIOGRAPHY
ATD-P-64-65 N65-14170

URANIUM

SYSTEM FOR NUCLEAR AUXILIARY POWER /SNAP/ PROGRAM
FUELS USING ZIRCONIUM AND URANIUM SYSTEMS -
BIBLIOGRAPHY
NAA-SR-9525, VOL. I N64-25866

V

VAN ALLEN BELT
VAN ALLEN TRAPPED RADIATION BELTS & EFFECT OF
SPACE RADIATION ON SNAP REACTOR SYSTEMS -
BIBLIOGRAPHY
NAA-SR-7849 N64-20529

BIBLIOGRAPHY ON EFFECTS OF VAN ALLEN RADIATION
BELTS ON ELECTRONIC MATERIALS
PDC-SEARCH-63-003 N64-32057

VESTIBULAR EFFECT
BIOLOGICAL CONTROL SYSTEMS - VESTIBULAR EFFECT ON
SPACE ORIENTATION OF MAN
NASA-CR-59441 N65-10363

VIBRATION
SHOCK AND VIBRATION IN SPACE ENVIRONMENT
BIBLIOGRAPHY
SB-63-24 N64-24920

VIBRATION DAMPING
DAMPING TRANSVERSE VIBRATION OF LARGE MISSILES -
BIBLIOGRAPHY
RSIC-266 N65-11995

VISUAL PERCEPTION
PERCEPTION BIBLIOGRAPHY WITH REFERENCES TO VISUAL,
AUDITORY, TIME, GUSTATORY, AND TACTILE PERCEPTION
A64-80710

VORTEX TUBE
BIBLIOGRAPHY - VORTEX TUBES
UCRL-7829 N64-23616

W

WATER
ANNOTATED BIBLIOGRAPHY ON CORROSION EFFECTS OF
PURE AND DISTILLED WATER
NASA-CR-58640 N64-28887

WATER VAPOR
BIBLIOGRAPHY ON EFFECTS OF WATER VAPOR AND OTHER
GASES ON REACTOR FUEL ELEMENTS
UCRL-7836 N64-25864

WEAPON
BIBLIOGRAPHY ON BALLISTICS, GUIDED MISSILES, AND
WEAPONS
TOCK-15963 N64-32590

WEATHER FORECASTING
BIBLIOGRAPHY ON STATISTICAL WEATHER FORECASTING
NWRP-41-1263-087 N65-15307

WEIGHT ANALYSIS
BIBLIOGRAPHY ON AERONAUTICAL WEIGHT ESTIMATION AND
CONTROL N64-28303

WEIGHTLESSNESS
BIOMEDICAL RESEARCH IN ACCELERATION, IMPACT,
WEIGHTLESSNESS, VIBRATION, AND EMERGENCY ESCAPE
AND RESTRAINT SYSTEM - BIBLIOGRAPHY
CARI-63-30 N64-22711

WELOED STRUCTURE
ANNOTATED BIBLIOGRAPHY ON PRINTED CIRCUITS AND
WELOED ELECTRONIC MODULES
REPT.-3-35-64-2 N64-21148

SUBJECT INDEX

WELDING
WELDING AND BRAZING OF BERYLLIUM AND ITS
ALLOYS - BIBLIOGRAPHY
SB-63-61 N64-20547

WORLD DATA CENTER
BIBLIOGRAPHY OF U.S.S.R. CONTRIBUTIONS TO
INTERNATIONAL GEOPHYSICAL YEAR /IGY/ WORLD
DATA CENTER BI
NASA-TT-F-92 N65-13964

Y

YOUNGS MODULUS
TECHNIQUES AND FUNDAMENTALS OF YOUNGS MODULUS AND
INTERNAL FRICTION MEASUREMENTS AND POROSITY
EFFECT ON ELASTICITY - ANNOTATED BIBLIOGRAPHY
IS-925 N65-14665

Z

ZIRCONIUM
SYSTEM FOR NUCLEAR AUXILIARY POWER /SNAP/ PROGRAM
FUELS USING ZIRCONIUM AND URANIUM SYSTEMS -
BIBLIOGRAPHY
NAA-SR-9525, VOL. I N64-25866

ZODIACAL LIGHT
ANNOTATED BIBLIOGRAPHY ON SKY ILLUMINATION -
AIRGLOW, AURORAS, NOCTILUCENT CLOUDS, ZODIACAL
LIGHT, GEGENSCHN, AND INSTRUMENTATION
AID-B-64-42 N64-24951

Personal Author Index

BIBLIOGRAPHIES ON AEROSPACE SCIENCE / *a continuing bibliography* APRIL 1965

Listing of Personal Authors of Reports

A Notation of Content, rather than the title of the document, appears under each author's name. The accession number is located beneath and to the right of the Notation of Content, e.g., N64-12345, A64-12450 or A64-80123. Under any one author's name, the accession numbers are arranged in sequence.

A

- ABBOTT, H. M.**
ANNOTATED BIBLIOGRAPHY ON GEARS, BEARINGS, AND LUBRICANTS FOR AEROSPACE APPLICATIONS
SB-63-59 N64-24921
- ADHESIVES, SEALS, GASKETS, AND POLYMERIC MATERIALS FOR AEROSPACE APPLICATIONS - BIBLIOGRAPHY
SB-63-77 N64-26823
- ANNOTATED BIBLIOGRAPHY OF STAGE SEPARATION AND EJECTION SYSTEMS OF FLIGHT VEHICLES
SB-64-14 N64-29314
- ALLEN, M. E.**
ANNOTATED BIBLIOGRAPHY OF FATIGUE, MALINGERING, NYSTAGMUS, DRUGS, AND FORENSIC SCIENCE
AM-64-16 N65-15308
- AMACHER, R. H.**
ABSTRACTING AND INDEXING COVERAGE OF SPACE BIOLOGY LITERATURE
NASA-CR-60326 N65-15377
- AMMONS, C. H.**
PERCEPTUAL-MOTOR SKILLS - BIBLIOGRAPHY
A64-80708
- PERCEPTION BIBLIOGRAPHY WITH REFERENCES TO VISUAL, AUDITORY, TIME, GUSTATORY, AND TACTILE PERCEPTION
A64-80710
- MOTOR SKILLS BIBLIOGRAPHY
A64-81138
- BIBLIOGRAPHY OF AUDITORY AND VISUAL PERCEPTION
A64-81149
- AMMONS, R. B.**
PERCEPTUAL-MOTOR SKILLS - BIBLIOGRAPHY
A64-80708
- PERCEPTION BIBLIOGRAPHY WITH REFERENCES TO VISUAL, AUDITORY, TIME, GUSTATORY, AND TACTILE PERCEPTION
A64-80710
- MOTOR SKILLS BIBLIOGRAPHY
A64-81138
- BIBLIOGRAPHY OF AUDITORY AND VISUAL PERCEPTION
A64-81149
- ARCHER, J. S.**
DIGITAL COMPUTER APPLICATIONS IN STRUCTURAL

ENGINEERING - BIBLIOGRAPHY N64-20613

- ASKREN, W. B., JR.**
BIBLIOGRAPHY ON MAINTENANCE PERSONNEL PERFORMANCE MEASUREMENT
AMRL-MEMO-P-45 N64-30500
- ATTERBURY, T. J.**
DAMPING TRANSVERSE VIBRATION OF LARGE MISSILES - BIBLIOGRAPHY
RSIC-266 N65-11995

B

- BAKER, R. M. L., JR.**
ASTRODYNAMIC DEVELOPMENTS IN 1963, LISTING NEW BOOKS AND PUBLICATIONS
AIAA PAPER 64-535 A64-20146
- BARRICK, P. L.**
ANNOTATED BIBLIOGRAPHY ON ORTHO AND PARA HYDROGEN AND CONVERSIONS
APL-TDR-64-81 N64-33303
- BARSELL, A. W.**
SYSTEM FOR NUCLEAR AUXILIARY POWER /SNAP/ PROGRAM FUELS USING ZIRCONIUM AND URANIUM SYSTEMS - BIBLIOGRAPHY
NAA-SR-9525, VOL. I N64-25866
- BELCHER, J. G., JR.**
PRESSURE DROP IN FLEXIBLE METAL HOSES, BELLOWS AND GIMBAL JOINTS - ANNOTATED BIBLIOGRAPHY
NASA-CR-56540 N64-24109
- BELLMAN, R. E.**
DYNAMIC PROGRAMMING - BIBLIOGRAPHY
RM-3951-PR N64-22614
- BELTON, W. L.**
DAMPING TRANSVERSE VIBRATION OF LARGE MISSILES - BIBLIOGRAPHY
RSIC-266 N65-11995
- BERGMANN, H. W.**
DIGITAL COMPUTER APPLICATIONS IN STRUCTURAL ENGINEERING - BIBLIOGRAPHY
N64-20613
- BOGGS, F. W.**
DELAYING TRANSITION FROM LAMINAR TO TURBULENT FLOW - BIBLIOGRAPHY
AD-427728 N64-22332
- BORNONG, B. J.**
RUST REMOVAL AND CORROSION PREVENTIVE COMPOUNDS - BIBLIOGRAPHY
RIA-63-2762 N64-18656
- BOSMAN, M.**
METAL CUTTING AND REMOVAL - BIBLIOGRAPHY
REPT.-22 N65-14963
- BRADLEY, J. E.**
CRYSTALLOGRAPHY, CRYSTAL GROWTH & CHEMISTRY, GLASS, IONS FOR LASERS, AND ANNOTATED BIBLIOGRAPHY ON LASER MATERIALS
NASA-CR-75 N64-30992
- BREISACHER, P.**
ANNOTATED BIBLIOGRAPHY ON SYNTHESIS AND PHYSICAL PROPERTIES OF ALUMINUM HYDRIDE AND RELATED COMPOUNDS
TOR-269/4210-10/-4 N64-21026

BREWER, L.
HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF GASES
AND GAS-CONDENSED PHASE REACTIONS - BIBLIOGRAPHY
REPT.-11 N64-19811

BIBLIOGRAPHY OF GAS AND CONDENSED PHASE REACTIONS
OF HIGH TEMPERATURE CHEMISTRY AND PHYSICS
N64-28694

BROWN, L. F.
ANNOTATED BIBLIOGRAPHY ON ORTHO AND PARA HYDROGEN
AND CONVERSIONS
APL-TDR-64-81 N64-33303

BUGINAS, S. J.
FUSION THERMIT WELDING - BIBLIOGRAPHY
SB-63-25 N64-20518

BURNET, O.
ANNOTATED BIBLIOGRAPHY ON HIGH VACUUM LIQUID
METAL DISTILLATION
IS-799 N64-26029

C

CABANISS, J. H.
BIBLIOGRAPHY OF FLUORINE AND FLOX OXIDIZERS FOR
SPACECRAFT PROPULSION SYSTEMS
NASA-TM-X-53149 N65-14430

CAMBEIS, L.
BIBLIOGRAPHY AND ABSTRACTS - AIRCRAFT CRASH, FIRE,
RESCUE, AND EVACUATION TECHNOLOGY
ADS-16 N64-33245

CAMPBELL, E. E.
CHEMICAL DETECTORS - BIBLIOGRAPHY
LAMS-2378 /VOL. 2/ N64-18397

CARDOON, S. Z.
DYNAMIC RESPONSE IN THERMOREGULATION, HORMONAL,
CARDIOVASCULAR, AND BEHAVIORAL SYSTEM
NASA-CR-141 N65-13546

CARTER, V.
BIBLIOGRAPHY OF FLUID AMPLIFICATION TECHNIQUES
N64-25307

CHEN, F. F.
BIBLIOGRAPHY ON MAGNETIC DIFFUSION & DRIFT
INSTABILITIES OF PLASMAS
MATT-285 N64-28421

CHICK, H. J.
BIBLIOGRAPHY ON THEORY OF GRAVITATION
LAMS-3099 N64-30374

COLLINS, W. E.
ANNOTATED BIBLIOGRAPHY OF FATIGUE, MALINGERING,
NYSTAGMUS, DRUGS, AND FORENSIC SCIENCE
AM-64-16 N65-15308

COTTLE, R. W.
MATHEMATICAL PROGRAMMING - BIBLIOGRAPHY
ORC-64-6/RN/ N64-23274

CRAMER, F. B.
LIQUID ROCKET ENGINE COMBUSTION PROCESSES -
LITERATURE SEARCH MECHANICS
NASA-CR-60041 N65-14533

CROOKS, J. B.
ANNOTATED BIBLIOGRAPHY ON NONMAGNETIC MATERIALS
FOR USE IN SPACECRAFT N64-28211

D

DEEM, H. W.
SPECIFIC HEAT, THERMAL EXPANSION, AND THERMAL
CONDUCTIVITY DATA FOR STRUCTURAL MATERIALS AT
HIGH TEMPERATURES - ANNOTATED BIBLIOGRAPHY
RSIC-202 N65-15174

DIAMOND, J. J.
BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF MATERIALS IN CONDENSED STATE
N64-19810

BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND

PHYSICS OF MATERIALS IN CONDENSED STATE N64-26900

BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF MATERIALS IN CONDENSED STATE N65-11921

DOBRTZ, B. M.
BIBLIOGRAPHY - VORTEX TUBES
UCRL-7829 N64-23616

BIBLIOGRAPHY ON EFFECTS OF WATER VAPOR AND OTHER
GASES ON REACTOR FUEL ELEMENTS
UCRL-7836 N64-25864

BIBLIOGRAPHY - RADIATION EFFECTS ON NOBLE METALS
UCRL-7810 N64-28739

DOLINSKAIA, R. A.
BIBLIOGRAPHY ON HEAT AND MASS TRANSFER
A64-27286

BIBLIOGRAPHY ON HEAT AND MASS TRANSFER IN CHEMICAL
AND PHYSICAL PROCESSES A65-12648

DRISCOLL, J. S.
ANNOTATED BIBLIOGRAPHY ON DYE SENSITIZED
PHOTOREACTIONS - SILVER HALIDE, FREE RADICAL, AND
POLYMERIZATION SENSITIZERS
AL-TDR-64-130, PT. II, VOL. I N64-32214

DUNCAN, J. C.
BIOMEDICAL RESEARCH IN ACCELERATION, IMPACT,
WEIGHTLESSNESS, VIBRATION, AND EMERGENCY ESCAPE
AND RESTRAINT SYSTEM - BIBLIOGRAPHY
CARI-63-30 N64-22711

DYER, J., JR.
ANNOTATED BIBLIOGRAPHY ON AEROSPACE SCIENCE AND
TECHNOLOGY
NASA-CR-58761 N64-32991

E

ECK, C. F.
ANNOTATED BIBLIOGRAPHY ON HELIUM 3
MLM-1190 N64-33718

ECKERT, E. R. G.
COMPREHENSIVE BIBLIOGRAPHY ON HEAT TRANSFER
A64-17188

HEAT TRANSFER BIBLIOGRAPHY INCLUDING RADIATION,
CONDUCTION, CONVECTION, BOUNDARY LAYERS, MASS
TRANSFER, MHD AND THERMODYNAMIC PROPERTIES
A64-25494

EMPEY, S. L.
COMPUTER APPLICATIONS IN MEDICINE AND BIOLOGICAL
SCIENCES - BIBLIOGRAPHY
SP-1025/001/00 N64-32324

EVANS, G. R.
SLOTTED ANTENNA STUDIES - BIBLIOGRAPHY
SB-63-4 N64-20891

BIBLIOGRAPHY ON SYSTEMS ENGINEERING
SB-63-12 N64-20892

BIBLIOGRAPHY OF ELECTRONIC COUNTERMEASURES AND
COUNTER-COUNTERMEASURES
SB-63-64 N64-22694

SPACE VEHICLE DATA LINK REQUIREMENTS -
BIBLIOGRAPHY
SB-63-57 N64-23345

AERODYNAMIC CHARACTERISTICS OF BODIES OF
REVOLUTION WITH FINS - ANNOTATED BIBLIOGRAPHY
SB-63-76 N64-23880

ANNOTATED BIBLIOGRAPHY OF AERODYNAMIC
CHARACTERISTICS OF BODIES OF REVOLUTION WITHOUT
FINS
SB-63-75 N64-27793

BIBLIOGRAPHY ON CREATIVITY, INNOVATION, AND
INVENTION FOR INDUSTRY N64-28451

ANNOTATED BIBLIOGRAPHY ON RADAR SIMULATION BY
ANALOG OR DIGITAL COMPUTER TECHNIQUES
SB-64-12 N64-32966

F

FEDERER, W. T.
BIBLIOGRAPHY OF EXPERIMENT DESIGN RESEARCH
MRC-405 N64-17921

FERRELL, J. K.
REVIEW OF HEAT TRANSFER RESEARCH AND DEVELOPMENT
DURING YEAR PRECEDING MARCH 1964 INCLUDING
REFERENCE BIBLIOGRAPHY A65-11903

FINE, J.
BIBLIOGRAPHY OF FLUID AMPLIFICATION TECHNIQUES
N64-25307

FRANCIS, L. S.
NUCLEAR FUSION DEVICES AND EXPERIMENTS USING
MAGNETIC MIRROR GEOMETRY - BIBLIOGRAPHY
CLM-BIB-5 N65-14971

FREED, J. A.
BIBLIOGRAPHY ON ETHICAL AND SOCIAL PROBLEMS OF
SCIENCE AND TECHNOLOGY
LAMS-3028 N64-22060

FRIEDEMANN, H. C.
BIBLIOGRAPHY OF WORLDWIDE REFERENCES ON THEORY AND
TECHNOLOGY OF SINTERING FROM 1958 TO 1963
A65-10557

FRITZ, J. S.
BIBLIOGRAPHY OF REVERSED-PHASE PARTITION
CHROMATOGRAPHY
IS-950 N64-31015

FULTON, R. E.
DIGITAL COMPUTER APPLICATIONS IN STRUCTURAL
ENGINEERING - BIBLIOGRAPHY N64-20613

G

GERBER, C. R.
PEACEFUL USES FOR NUCLEAR EXPLOSIVES - ANNOTATED
BIBLIOGRAPHY
TID-3522/REV. 7/ N64-19852

ANNOTATED BIBLIOGRAPHY ON USE OF NUCLEAR
EXPLOSIONS FOR PEACEFUL PURPOSES
N64-20716

GLASS, R. A.
EFFECTS OF RADIATION AND HOT ATOMS ON SIMPLE
COMPOUNDS - BIBLIOGRAPHY
SB-63-37 N64-26820

GOLDMANN, J. B.
OPTICAL IMAGE CONVERTERS - BIBLIOGRAPHY
SB-64-5 N64-20498

ANNOTATED BIBLIOGRAPHY ON SUPERCONDUCTIVITY
SRB-63-5 N64-20499

BIBLIOGRAPHY ON SUPERCONDUCTIVITY
SB-63-33 N64-20500

BIBLIOGRAPHY - RADIATION EFFECT ON ANIMALS, MAN,
AND PLANTS
SB-62-60 N64-20517

BIBLIOGRAPHY ON DYNAMIC LOADING
SB-63-53 N64-20532

WELDING AND BRAZING OF BERYLLIUM AND ITS
ALLOYS - BIBLIOGRAPHY
SB-63-61 N64-20547

ANNOTATED BIBLIOGRAPHY ON THERMODYNAMICS OF
BERYLLIUM AND ITS REFRACTORY COMPOUNDS - OXIDES,
CARBIDES, & NITRIDES
SB-63-16 N64-20893

ANNOTATED BIBLIOGRAPHY ON BERYLLIUM METAL, ALLOYS,
AND COMPOUNDS,
SB-62-22 N64-20894

ANNOTATED BIBLIOGRAPHY ON PRINTED CIRCUITS AND
WELDED ELECTRONIC MODULES
REPT.-3-35-64-2 N64-21148

ANNOTATED BIBLIOGRAPHY - FABRICATION OF IRON,
NICKEL, NICKEL-IRON OR PERMALLOY FILM BY THERMAL
DECOMPOSITION OF CARBONYLS OR OTHER METHODS
SP-63-62 N64-21165

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